

BUILDING STANDARDS COMMISSION

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February 15, 2011

Sam Lee, Building Safety Manager
Planning & Building Safety Dept., City Hall
City of El Segundo
350 Main Street
El Segundo, CA 90245-3813

Dear Sam Lee:

This letter is to acknowledge receipt on November 24, 2010 of the City of El Segundo submittal pertaining to Ordinance Nos. 1449 through 1456 with findings and is acceptable for filing. Your filing attests to your understanding that according to Health and Safety Code Section 17958.7 no modification or change to the California Building Standards Code shall become effective or operative for any purpose until the finding and the modification or change have been filed with the California Building Standards Commission (the Commission).

This letter attests only to the filing of these local modifications with the Commission, which is not authorized by law to determine the merit of the filing.

As a reminder, local modifications are specific to a particular edition of the Code. They must be readopted and filed with the Commission in order to remain in effect when the next triennial edition of the Code is published. In addition, should you receive Fire Protection District ordinances for ratification, it is required to submit the ratified ordinances to the Department of Housing and Community Development [H&SC Section 13869.7(c)], attention State Housing Law Program Manager, rather than the Commission.

If you have any questions or need any further information, you may contact me at (916) 263-0916.

Sincerely,


Enrique M. Rodriguez
Associate Construction Analyst

cc: Chron
Local Filings

ORDINANCE NO. 1449

AN ORDINANCE INCORPORATING THE 2010 CALIFORNIA BUILDING CODE ("CBC") BY REFERENCE AND AMENDING THE CBC BASED UPON LOCAL CLIMATIC, TOPOGRAPHIC, AND GEOLOGICAL CONDITIONS.

The council of the city of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

A. In accord with Health & Safety Code Section 17958.7, it is in the public interest to adopt the California Building Code ("CBC") with the changes set forth in this Ordinance.

B. Pursuant to the requirements of Health & Safety Code Section 17958.7, the City Council finds that there are local geological conditions justifying the CBC amendments set forth below.

The City of El Segundo and the greater Los Angeles region is a densely populated area having buildings and structures constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification emphasize that the design concern is for seismic-force-resisting elements and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the International Building Code. Experts predict a major earthquake in our area within the next 50 years. This situation creates the need for both additional fire protection measures and automatic on-site fire protection of building occupants since a multitude of fires may result from breakage of gas and electric lines as a result of an earthquake. After due consideration, the City Council finds and determines that due to local climatic, geological, or topographical conditions, the structural and fire protection amendments to the 2010 CBC are necessary to give buildings a reasonable degree of structural integrity and fire life safety to help protect public health and safety in the event of a seismic event;

Additional amendments have been made to Codes are hereby found to be either administrative or procedural in nature or concern themselves with subjects not covered in such Codes. The changes made include provisions making each of said Codes compatible with other Codes enforced by the City.

C. The specific amendments of the CBC that fulfill this requirement are:

1. Amend CBC Section 105.2 Work exempt from permit
2. Amend CBC Section 105.3.2 Expiration of Plan Check
3. Amend CBC Section 105.5 Expiration of Permits
4. Amend CBC Section 113.3 Board of appeals
5. Amend CBC Section 1613.6.1 Assumption of Flexible Diaphragm.
6. Amend CBC Section 1613.6.7 Building Separation
7. Add CBC Section 1613.8 BRBF Period Parameter

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8. Add CBC Section 1613.9 Values for Vertical Combinations
9. Add CBC Section 1613.10 Stability Coefficient
10. Add CBC Section 1613.11 Subdiaphragm
11. Add CBC Section 1613.13 Suspended Ceiling
12. Amend CBC Section 1704.4 SI for Concrete Construction
13. Amend CBC Section 1704.8 Driven Deep Foundations
14. Amend CBC Section 1704.9 Cast-in-Place Deep Foundations
15. Amend CBC Section 1705.3 Seismic Resistance Inspection
16. Amend CBC Section 1710.1 Structural Observations General
17. Amend CBC Section 1710.2 Structural Observations Seismic
18. Amend CBC Section 1807.1.4 Permanent Wood Foundation System
19. Amend CBC Section 1807.1.6 Prescriptive Design of Foundation Walls
20. Amend CBC Section 1809.3 Stepped Footings
21. Amend CBC Table 1809.7 Prescriptive Footings
22. Amend CBC Section 1809.12 Timber Footings
23. Amend CBC Section 1810.3.2.4 Timber
24. Add CBC Sections 1908.1.11 thru 14 Reinforcement
25. Amend CBC Section 1908.1.2 Intermediate Structural Wall
26. Amend CBC Section 1908.1.3 Wall Pier
27. Amend CBC Section 1908.1.8 Minimum Reinforcement
28. Amend CBC Section 1909.4 Structural Plain Concrete Design
29. Add CBC Section 2204.1.1 Consumables for Welding
30. Add CBC Section 2205.4 SCBF Member Type
31. Amend CBC Section 2304.11.7 Wood Used in Retaining Wall
32. Add CBC Section 2305.4 Quality of Nails
33. Add CBC Section 2305.5 Hold-down Connectors
34. Amend CBC Section 2306.2.1 Wood Diaphragm
35. Amend CBC Section 2306.3 Wood Shear Walls

36. Amend CBC Section 2306.7 Other Shear Walls
37. Amend CBC Section 2308.3.4 Brace Wall Line Support
38. Amend CBC Section 2308.12.2 Concrete or Masonry
39. Amend CBC Section 2308.12.4 Braced Wall Sheathing
40. Amend CBC Section 2304.9.1 Fastener Requirement
41. Amend CBC Section 2308.12.5 Attachment of Sheathing
42. Amend Appendix J section J 101 by adding a new section J 101.3 Protection of Adjacent Properties

D. At least one copy of the CBC was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: El Segundo Municipal Code ("ESMC") Section 13-1-1 is amended in its entirety to read as follows:

CHAPTER 1 BUILDING CODE

"13-1-1: ADOPTION OF CALIFORNIA BUILDING CODE, 2010 EDITION. Pursuant to California Government Code Section 50022.2, the California Building Code, 2010 Edition, published at Title 24, Part 5, of the California Code of Regulations, including Appendices F, H, I, and J ("CBC") is adopted by reference, subject to the amendments, additions and deletions set forth below. One true copy of the CBC, is on file in the office of the Building Official and is available for public inspection as required by law."

SECTION 3: ESMC Section 13-1-2 is amended to the California Building Code including the adopted appendices is hereby amended as follows:

"13-1-2: AMENDMENTS TO THE CODE:

Number 14 is added to Section 105.2 of Division II of Chapter 1 of the CBC as follows:

Section 105.2 Work exempt from permit.

14. Block wall and concrete fences not over 3 ft 6 inches.

Section 105.3.2 of Division II of Chapter 1 of the CBC is hereby amended to read as follows:

SECTION 105.3.2 EXPIRATION OF PLAN CHECK.

An application for a permit for any proposed work shall be deemed to have been abandoned 12 months after the date of filing and no permit shall be issued until the plans are rechecked and approved and a new fee is paid.

EXCEPTION: The Building Official may grant extensions of time if a permit applicant submits in writing sufficient evidence that unusual conditions or circumstances precluded the securing of the permit within the allocated time.

Section 105.5 of Division II of Chapter 1 of the CBC is hereby amended to read as follows:

SECTION 105.5 EXPIRATION OF PERMITS.

Every permit issued shall be valid for a period of three (3) years from the date thereof, provided that any permit shall expire on the one hundred and eightieth (180) day from date of issuance if the work permitted there under has not been commenced; or shall expire whenever the Department determines the work authorized by any permit has been suspended, discontinued or abandoned for a continuous period of 180 days.

EXCEPTION: The Building Official may grant extensions of time if a permit applicant submits in writing sufficient evidence that unusual conditions or circumstances precluded from the work being completed. An extension of time may require conditions of approval and additional fees.

Section 113.4 of Division II of Chapter 1 of the CBC is hereby added to read as follows:

Section 113.4 Board of Appeals.

The board of appeals shall consist of members of the Planning Commission. The term of a board of appeals member will coincide with the term of service as a Planning Commissioner and will terminate should the member cease serving as a Planning Commissioner. The building official is the secretary to the board. The board may adopt reasonable rules and regulations for conducting its investigations and will render all its decisions and findings on contested matters, in writing to the building official, with a duplicate copy for any appellant or contestant affected by such decision or finding, and may recommend to the city council appropriate new legislation.

Three members of the board constitute a quorum. The Planning Chairperson is the board's chairperson and in the chairperson's absence the board will select a temporary chairperson.

The city will assess a \$250.00 charge, or a higher amount set by resolution, at the time that an appellant file appeal of any order, decisions, or determination made by the building official relative to the application and interpretation of this code. The filing fee is refundable should the appellant prevail in a decision by the board. The appeal must be taken by filing a written notice of appeal, in letterform, to the board of appeals. The board's decision constitutes the city's final decision.

Section 1613.6.1 of the CBC is amended to read as follows:

1613.6.1 Assumption of flexible diaphragm. Add the following text at the end of Section 12.3.1.1 of ASCE 7:

Diaphragms constructed of wood structural panels or untopped steel decking shall also be permitted to be idealized as flexible, provided all of the following conditions are met:

1. Toppings of concrete or similar materials are not placed over wood structural panel diaphragms except for nonstructural toppings no greater than 1 ½ inches (38 mm) thick.
2. Each line of vertical elements of the seismic-force-resisting system complies with the allowable story drift of Table 12.12-1.
3. Vertical elements of the seismic-force-resisting system are light-framed walls sheathed with wood structural panels rated for shear resistance or steel sheets.
4. Portions of wood structural panel diaphragms that cantilever beyond the vertical elements of the seismic-force-resisting system are designed in accordance with Section 4.2.5.2 of AF&PA SDPWS.

Equation 16-44 of Section 1613.6.7 of the CBC is amended to read as follows:

$$\delta_M = \frac{C_d \delta_{max}}{\quad} \quad \text{(Equation 16-44)}$$

where:

- C_d = Deflection amplification factor in Table 12.2-1 of ASCE 7.
 δ_{max} = Maximum displacement defined in Section 12.8.4.3 of ASCE 7.

Section 1613.8 is added to Chapter 16 of the CBC to read as follows:

1613.8 ASCE 7, Table 12.8-2. Modify ASCE 7 Table 12.8-2 by adding the following:

Structure Type	C_t	α
Eccentrically braced steel frames and buckling-restrained braced frames	0.03 (0.0731) ^a	0.75

Section 1613.9 is added to Chapter 16 of the CBC to read as follows:

1613.9 ASCE 7, 12.2.3.1, Exception 3. Modify ASCE 7 Section 12.2.3.1 Exception 3 to read as follows:

3. Detached one and two family dwellings up to two stories in height of light frame construction.

2010 LARUCP 16-05. Section 1613.10 is added to Chapter 16 of the CBC to read as follows:

1613.10 ASCE 7, Section 12.8.7. Modify ASCE 7 Section 12.8.7 by amending Equation 12.8-16 as follows:

$$\theta = \frac{P_x \Delta I}{V_x h_{sx} C_d} \quad (12.8-16)$$

Section 1613.11 is added to Chapter 16 of the CBC to read as follows:

1613.11 ASCE 7, Section 12.11.2.2.3. Modify ASCE 7, Section 12.12.4 to read as follows:

12.11.2.2.3 Wood Diaphragms. In wood diaphragms, the continuous ties shall be in addition to the diaphragm sheathing. Anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal nor shall wood ledgers or framing be used in cross-grain bending or cross-grain tension. The diaphragm sheathing shall not be considered effective as providing ties or struts required by this section.

For structures assigned to Seismic Design Category D, E or F, wood diaphragms supporting concrete or masonry walls shall comply with the following:

1. The spacing of continuous ties shall not exceed 40 feet. Added chords of diaphragms may be used to form subdiaphragms to transmit the anchorage forces to the main continuous crossties.
2. The maximum diaphragm shear used to determine the depth of the subdiaphragm shall not exceed 75% of the maximum diaphragm shear.

Section 1613.13 is added to Chapter 16 of the CBC to read as follows:

1613.13 Suspended Ceilings. Minimum design and installation standards for suspended ceilings shall be determined in accordance with the requirements of Section 2506.2.1 of this Code and this subsection.

1613.13.1 Scope. This part contains special requirements for suspended ceilings and lighting systems. Provisions of Section 13.5.6 of ASCE 7 shall apply except as modified herein.

1613.13.2 General. The suspended ceilings and lighting systems shall be limited to 6 feet (1828 mm) below the structural deck unless the lateral bracing is designed by a licensed engineer or architect.

1613.13.3 Design and Installation Requirements.

1613.13.3.1 Bracing at Discontinuity. Positive bracing to the structure shall be provided at changes in the ceiling plane elevation or at discontinuities in the ceiling grid system.

1613.13.3.2 Support for Appendages. Cable trays, electrical conduits and piping shall be independently supported and independently braced from the structure.

1613.13.3.3 Sprinkler Heads. All sprinkler heads (drops) except fire-resistance-rated floor/ceiling or roof/ceiling assemblies, shall be designed to allow for free movement of the sprinkler pipes with oversize rings, sleeves or adaptors through the ceiling tile, in accordance with Section 13.5.6.2.2 (e) of ASCE 7.

Sprinkler heads penetrating fire-resistance-rated floor/ceiling or roof/ceiling assemblies shall comply with Section 713 of this Code.

1613.13.3.4 Perimeter Members. A minimum wall angle size of at least a two-inch (51 mm) horizontal leg shall be used at perimeter walls and interior full height partitions. The first ceiling tile shall maintain 3/4 inch (19 mm) clear from the finish wall surface. An equivalent alternative detail that will provide sufficient movement due to anticipated lateral building displacement may be used in lieu of the long leg angle subject to the approval of the Building Official.

1613.13.4 Special Requirements for Means of Egress. Suspended ceiling assemblies located along means of egress serving an occupant load of 30 or more shall comply with the following provisions.

1613.13.4.1 General. Ceiling suspension systems shall be connected and braced with vertical hangers attached directly to the structural deck along the means of egress serving an occupant load of 30 or more and at lobbies accessory to Group A Occupancies. Spacing of vertical hangers shall not exceed 2 feet (610 mm) on center along the entire length of the suspended ceiling assembly located along the means of egress or at the lobby.

1613.13.4.2 Assembly Device. All lay-in panels shall be secured to the suspension ceiling assembly with two hold-down clips minimum for each tile within a 4-foot (1219 mm) radius of the exit lights and exit signs.

1613.13.4.3 Emergency Systems. Independent supports and braces shall be provided for light fixtures required for exit illumination. Power supply for exit illumination shall comply with the requirements of Section 1006.3 of this Code.

1613.13.4.4 Supports for Appendage. Separate support from the structural deck shall be provided for all appendages such as light fixtures, air diffusers, exit signs, and similar elements.

Section 1704.4 of the CBC is amended to read as follows:

1704.4 Concrete Construction. The special inspections and verifications for concrete construction shall be as required by this section and Table 1704.4.

Exceptions: Special inspection shall not be required for:

1. Isolated spread concrete footings of buildings three stories or less above grade plane that are fully supported on earth or rock, where the structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa).
2. Continuous concrete footings supporting walls of buildings three stories or less in height that are fully supported on earth or rock where:
 - 2.1. The footings support walls of light-frame construction;
 - 2.2. The footings are designed in accordance with Table 1805.4.2; or
 - 2.3. The structural design of the footing is based on a specified compressive strength, f'_c , no greater than 2,500 pounds per square inch (psi) (17.2 Mpa), regardless of the compressive strength specified in the construction documents or used in the footing construction.
3. Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade, where the effective prestress in the concrete is less than 150 psi (1.03 Mpa).
4. Concrete patios, driveways and sidewalks, on grade.

Section 1704.8 of the CBC is amended to read as follows:

1704.8 Driven deep foundations and connection grade beams. Special inspections shall be performed during installation and testing of driven deep foundation elements as required by Table 1704.8. Special inspections shall be performed for connection grade beams in accordance with Section 1704.4 for structures assigned to Seismic Design Category D, E or F. The approved geotechnical report, and the construction documents prepared by the registered design professionals, shall be used to determine compliance.

Section 1704.9 of the CBC is amended to read as follows:

1704.9 Cast-in-place deep foundations and connection grade beams. Special inspections shall be performed during installation and testing of cast-in-place deep foundation elements as required by Table 1704.9. Special inspections shall be performed for connection grade beams in accordance with Section 1704.4 for structures assigned to Seismic Design Category D, E or F. The approved geotechnical report, and the construction documents prepared by the registered design professionals, shall be used to determine compliance.

Section 1705.3 of the CBC is amended to read as follows:

1705.3 Seismic resistance. The statement of special inspections shall include seismic requirements for cases covered in Sections 1705.3.1 through 1705.3.5.

Exception: Seismic requirements are permitted to be excluded from the statement of special inspections for structures designed and constructed in accordance with the following:

1. The structure consists of light-frame construction; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.5.4, does not exceed 0.5g; and the height of the structure does not exceed 35 feet (10 668 mm) above grade plane; or
2. The structure is constructed using a reinforced masonry structural system or reinforced concrete structural system; the design spectral response acceleration at short periods, S_{DS} , as determined in Section 1613.5.4, does not exceed 0.5g, and the height of the structure does not exceed 25 feet (7620 mm) above grade plane; or
3. Detached one- or two-family dwellings not exceeding two stories above grade plane, provided the structure is not assigned to Seismic Design Category D, E or F and does not have any of the following plan or vertical irregularities in accordance with Section 12.3.2 of ASCE 7:

3.1 Torsional irregularity.

3.2 Nonparallel systems.

3.3 Stiffness irregularity—extreme soft story and soft story.

3.4 Discontinuity in capacity—weak story.

Section 1710.1 of the CBC is amended to read as follows:

1710.1 General. Where required by the provisions of Section 1710.2 or 1710.3, the owner shall employ a structural observer to perform structural observations as defined in Section 1702. The structural observer shall be one of the following individuals:

1. The registered design professional responsible for the structural design, or
2. A registered design professional designated by the registered design professional responsible for the structural design.

Prior to the commencement of observations, the structural observer shall submit to the building official a written statement identifying the frequency and extent of structural observations.

The owner or owner's representative shall coordinate and call a preconstruction meeting between the structural observer, contractors, affected subcontractors and special inspectors. The structural observer shall preside over the meeting. The purpose of the meeting shall be to identify the major structural elements and connections that affect the vertical and lateral load resisting systems of the structure and to review scheduling of the required observations. A record of the meeting shall be included in the report submitted to the building official.

Observed deficiencies shall be reported in writing to the owner or owner's representative, special inspector, contractor and the building official. Upon the form prescribed by the building official, the structural observer shall submit to the building official a written statement at each significant construction stage stating that the site visits have been made and identifying any reported deficiencies which, to the

best of the structural observer's knowledge, have not been resolved. A final report by the structural observer which states that all observed deficiencies have been resolved is required before acceptance of the work by the building official.

Section 1710.2 of the CBC is amended to read as follows:

1710.2 Structural observations for seismic resistance. Structural observations shall be provided for those structures assigned to Seismic Design Category D, E or F, as determined in Section 1613, where one or more of the following conditions exist:

1. The structure is classified as Occupancy Category III or IV in accordance with Table 1604.5.
2. The height of the structure is greater than 75 feet (22860 mm) above the base.
3. The structure is classified as Occupancy Category I or II in accordance with Table 1604.5, and a lateral design is required for the structure or portion thereof.

Exception: One-story wood framed Group R-3 and Group U Occupancies less than 2,000 square feet in area, provided the adjacent grade is not steeper than 1 unit vertical in 10 units horizontal (10% sloped), assigned to Seismic Design Category D.

4. When so designated by the registered design professional responsible for the structural design.
5. When such observation is specifically required by the building official.

Section 1807.1.4 of the CBC is amended to read as follows:

1807.1.4 Permanent wood foundation systems. Permanent wood foundation systems shall be designed and installed in accordance with AF&PA PWF. Lumber and plywood shall be treated in accordance with AWP A U1 (Commodity Specification A, Use Category 4B and Section 5.2) and shall be identified in accordance with Section 2303.1.8.1. Permanent wood foundation systems shall not be used for structures assigned to Seismic Design Category D, E or F.

Section 1807.1.6 of the CBC is amended to read as follows:

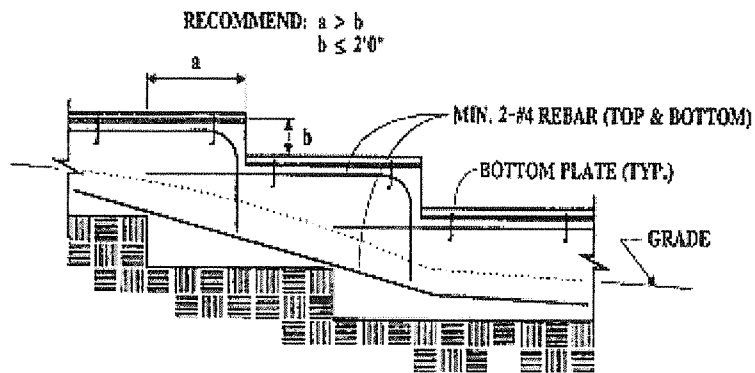
1807.1.6 Prescriptive design of concrete and masonry foundation walls. Concrete and masonry foundation walls that are laterally supported at the top and bottom shall be permitted to be designed and constructed in accordance with this section. Prescriptive design of foundation walls shall not be used for structures assigned to Seismic Design Category D, E or F.

Section 1809.3 of the CBC is amended to read as follows:

1809.3 Stepped footings. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope).

Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

For structures assigned to Seismic Design Category D, E or F, the stepping requirement shall also apply to the top surface of grade beams supporting walls. Footings shall be reinforced with four 1/2-inch diameter (12.7 mm) deformed reinforcing bars. Two bars shall be placed at the top and bottom of the footings as shown in Figure 1809.3.



STEPPED FOUNDATIONS

FIGURE 1809.3
STEPPED FOOTING

Section 1809.7 and Table 1809.7 of the CBC are amended to read as follows:

1809.7 Prescriptive footings for light-frame construction. Where a specific design is not provided, concrete or masonry-unit footings supporting walls of light-frame construction shall be permitted to be designed in accordance with Table 1809.7. Prescriptive footings in Table 1809.7 shall not exceed one story above grade plane for structures assigned to Seismic Design Category D, E or F.

TABLE 1809.7
PRESCRIPTIVE FOOTINGS SUPPORTING WALLS OF
LIGHT-FRAME CONSTRUCTION ^{a, b, c, d, e}

NUMBER OF FLOORS SUPPORTED BY THE FOOTING ^f	WIDTH OF FOOTING (inches)	THICKNESS OF FOOTING (inches)
1	12	6
2	15	6
3	18	8 ^g

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm

- a. Depth of footings shall be in accordance with Section 1809.4.
- b. The ground under the floor shall be permitted to be excavated to the elevation of the top of the footing.
- c. Not Adopted.
- d. See Section 1908 for additional requirements for concrete footings of structures assigned to Seismic Design Category C, D, E or F.
- e. For thickness of foundation walls, see Section 1807.1.6.
- f. Footings shall be permitted to support a roof addition to the stipulated number of floors. Footings supporting roof only shall be as required for supporting one floor.

Section 1809.12 of the CBC is amended to read as follows:

1809.12 Timber footings. Timber footings shall be permitted for buildings of Type V construction and as otherwise approved by the building official. Such footings shall be treated in accordance with AWPA U1 (Commodity Specification A, Use Category 4B). Treated timbers are not required where placed entirely below permanent water level, or where used as capping for wood piles that project above the water level over submerged or marsh lands. The compressive stresses perpendicular to grain in untreated timber footing supported upon treated piles shall not exceed 70 percent of the allowable stresses for the species and grade of timber as specified in the AF&PA NDS. Timber footings shall not be used in structures assigned to Seismic Design Category D, E or F.

Section 1810.3.2.4 of the CBC is amended to read as follows:

1810.3.2.4 Timber. Timber deep foundation elements shall be designed as piles or poles in accordance with AF&PA NDS. Round timber elements shall conform to ASTM D 25. Sawn timber elements shall conform to DOC PS-20. Timber shall not be used in structures assigned to Seismic Design Category D, E or F.

Section 1908.1 is amended to read as shown below and Sections 1908.1.11 thru 1908.1.14 is added to Chapter 19 of the CBC to read as follows:

1908.1 General. The text of ACI 318 shall be modified as indicated in Sections 1908.1.1 through 1908.1.14.

1908.1.11 ACI 318, Section 21.6.4.1. Modify ACI 318, Section 21.6.4.1, to read as follows:

Where the calculated point of contraflexure is not within the middle half of the member clear height, provide transverse reinforcement as specified in ACI 318 Sections 21.6.4.1, Items (a) through (c), over the full height of the member.

1908.1.12 ACI 318, Section 21.6.4. Modify ACI 318, Section 21.6.4, by adding Section 21.6.4.8 to read as follows:

21.6.4.8 – At any section where the design strength, ϕP_n , of the column is less than the sum of the shears V_e computed in accordance with ACI 318 Sections 21.5.4.1 and 21.6.5.1 for all the beams framing into the column above the level under consideration, transverse reinforcement as specified in ACI 318 Sections 21.6.4.1 through 21.6.4.3 shall be provided. For beams framing into opposite sides of the column, the moment components may be assumed to be of opposite sign. For the determination of the design strength, ϕP_n , of the column, these moments may be assumed to result from the deformation of the frame in any one principal axis.

1908.1.13 ACI 318, Section 21.9.4. Modify ACI 318, Section 21.9.4, by adding Section 21.9.4.6 to read as follows:

21.9.4.6 – Walls and portions of walls with $P_u > 0.35P_o$ shall not be considered to contribute to the calculated strength of the structure for resisting earthquake-induced forces. Such walls shall conform to the requirements of ACI 318 Section 21.13.

1908.1.14 ACI 318, Section 21.11.6. Modify ACI 318, Section 21.11.6, by adding the following:

Collector and boundary elements in topping slabs placed over precast floor and roof elements shall not be less than 3 inches (76 mm) or $6 d_b$ thick, where d_b is the diameter of the largest reinforcement in the topping slab.

Section 1908.1.2 of the CBC is amended to read as follows:

1908.1.2 ACI 318, Section 21.1.1. Modify ACI 318, Sections 21.1.1.3 and 21.1.1.7 as follows:

21.1.1.3 – Structures assigned to Seismic Design Category A shall satisfy requirements of Chapters 1 to 19 and 22; Chapter 21 does not apply. Structures assigned to Seismic Design Category B, C, D, E or F also shall satisfy 21.1.1.4 through 21.1.1.8, as applicable. Except for structural elements of plain concrete complying with Section 1908.1.8 of the International Building Code, structural elements of plain concrete are prohibited in structures assigned to Seismic Design Category C, D, E or F.

21.1.1.7 – Structural systems designated as part of the seismic-force-resisting system shall be restricted to those permitted by ASCE 7. Except for Seismic Design Category A, for which Chapter 21 does not apply, the following provisions shall be satisfied for each structural system designated as part of the seismic-force-resisting system, regardless of the Seismic Design Category:

- (a) Ordinary moment frames shall satisfy 21.2.
- (b) Ordinary reinforced concrete structural walls and ordinary precast structural walls need not satisfy any provisions in Chapter 21.
- (c) Intermediate moment frames shall satisfy 21.3.
- (d) Intermediate precast structural walls shall satisfy 21.4.
- (e) Special moment frames shall satisfy 21.5 through 21.8.
- (f) Special structural walls shall satisfy 21.9.
- (g) Special structural walls constructed using precast concrete shall satisfy 21.10.

All special moment frames and special structural walls shall also satisfy 21.1.3 through 21.1.7. Concrete tilt-up wall panels classified as intermediate precast structural wall system shall satisfy 21.9 in addition to 21.4.2 and 21.4.3 for structures assigned to Seismic Design Category D, E or F.

Section 1908.1.3 of the CBC is amended to read as follows:

1908.1.3 ACI 318, Section 21.4. Modify ACI 318, Section 21.4, by renumbering Section 21.4.3 to become 21.4.4 and adding new Sections 21.4.3, 21.4.5, 21.4.6 and 21.4.7 to read as follows:

21.4.3 – Connections that are designed to yield shall be capable of maintaining 80 percent of their design strength at the deformation induced by the design displacement or shall use Type 2 mechanical splices.

21.4.4 – Elements of the connection that are not designed to yield shall develop at least $1.5 S_y$.

21.4.5 – Wall piers in Seismic Design Category D, E or F shall comply with Section 1908.1.4 of this Code.

21.4.6 – Wall piers not designed as part of a moment frame in buildings assigned to Seismic Design Category C shall have transverse reinforcement designed to resist the shear forces determined from 21.3.3. Spacing of transverse reinforcement shall not exceed 8 inches (203 mm). Transverse reinforcement shall be extended beyond the pier clear height for at least 12 inches (305 mm).

Exceptions:

- 1. Wall piers that satisfy 21.13.
- 2. Wall piers along a wall line within a story where other shear wall segments provide lateral support to the wall piers and such segments have a total stiffness of at least six times the sum of the stiffnesses of all the wall piers.

21.4.7 – Wall segments with a horizontal length-to-thickness ratio less than 2.5 shall be designed as columns.

Section 1908.1.8 of the CBC is amended to read as follows:

1908.1.8 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

22.10 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

22.10.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

- (a) Concrete used for fill with a minimum cement content of two (2) sacks of Portland cement per cubic yard.
- (b) Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.
- (c) Plain concrete footings supporting walls are permitted provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. A minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

In detached one- and two-family dwellings three stories or less in height and constructed with stud-bearing walls, plain concrete footings with at least two continuous longitudinal reinforcing bars not smaller than No. 4 are permitted to have a total area of less than 0.002 times the gross cross-sectional area of the footing.

Section 1909.4 of the CBC is amended to read as follows:

1909.4 Design. Structural plain concrete walls, footings and pedestals shall be designed for adequate strength in accordance with ACI 318, Section 22.4 through 22.8.

Exception: For Group R-3 occupancies and buildings or other occupancies less than two stories above grade plane of light-frame construction, the required edge thickness of ACI 318 is permitted to be reduced to 6 inches (152 mm), provided that the footing does not extend more than 4 inches (102 mm) on either side of the supported wall. This exception shall not apply to structural elements designed to resist seismic lateral forces for structures assigned to Seismic Design Category D, E or F.

Section 2204.1.1 is added to Chapter 22 of the CBC to read as follows:

2204.1.1 Consumables for welding.

2204.1.1.1 Seismic Force Resisting System (SFRS) welds. All welds used in members and connections in the SFRS shall be made with filler metals meeting the requirements specified in AWS D1.8 Clause 6.3. AWS D1.8 Clauses 6.3.5, 6.3.6, 6.3.7 and 6.3.8 shall apply only to demand critical welds.

2204.1.1.2 Demand critical welds. Where welds are designated as demand critical, they shall be made with filler metals meeting the requirements specified in AWS D1.8 Clause 6.3.

Section 2205.4 is added to Chapter 22 of the CBC to read as follows:

2205.4 AISC 341, Part I, Section 13.2 Members. Add Section 13.2f to read as follows:

13.2f. Member Types

The use of rectangular HSS are not permitted for bracing members, unless filled solid with cement grout having a minimum compressive strength of 3,000 psi (20.7 MPa) at 28 days. The effects of composite action in the filled composite brace shall be considered in the sectional properties of the system where it results in the more severe loading condition or detailing.

Section 2304.11.7 of the CBC is amended to read as follows:

2304.11.7 Wood used in retaining walls and cribs. Wood installed in retaining or crib walls shall be preservative treated in accordance with AWWPA U1 (Commodity Specifications A or F) for soil and fresh water use. Wood shall not be used in retaining or crib walls for structures assigned to Seismic Design Category D, E or F.

Section 2305.4 is added to Chapter 23 of the CBC to read as follows:

2305.4 Quality of Nails. In Seismic Design Category D, E or F, mechanically driven nails used in wood structural panel shear walls shall meet the same dimensions as that required for hand-driven nails, including diameter, minimum length and minimum head diameter. Clipped head or box nails are not permitted in new construction. The allowable design value for clipped head nails in existing construction may be taken at no more than the nail-head-area ratio of that of the same size hand-driven nails.

Section 2305.5 is added to Chapter 23 of the CBC to read as follows:

2305.5 Hold-down connectors. In Seismic Design Category D, E or F, hold-down connectors shall be designed to resist shear wall overturning moments using approved cyclic load values or 75 percent of the allowable seismic load values that do not consider cyclic loading of the product. Connector bolts into wood framing shall require steel plate washers on the post on the opposite side of the anchorage device. Plate size shall be a minimum of 0.229 inch by 3 inches by 3 inches (5.82 mm by 76 mm by 76 mm) in size. Hold-down connectors shall be tightened to finger tight plus one half (1/2) wrench turn just prior to covering the wall framing.

Tables 2306.2.1(3) and 2306.2.1(4) are added to Chapter 23 of the CBC and Section 2306.2.1 of the CBC is amended to read as follows:

2306.2.1 Wood structural panel diaphragms. Wood structural panel diaphragms shall be designed and constructed in accordance with AF&PA SDPWS. Wood structural panel diaphragms are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.2.1(1) or 2306.2.1(2). For structures assigned to Seismic Design Category D, E or F, the allowable shear capacities shall be set forth in Table 2306.2.1(3) or 2306.2.1(4). The allowable shear capacities in Table 2306.2.1(1) or 2306.2.1(2) are permitted to be increased 40 percent for wind design.

Wood structural panel diaphragms fastened with staples shall not used to resist seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used for wood structural panel diaphragms when the allowable shear values are substantiated by cyclic testing and approved by the building official.

Wood structural panel diaphragms used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

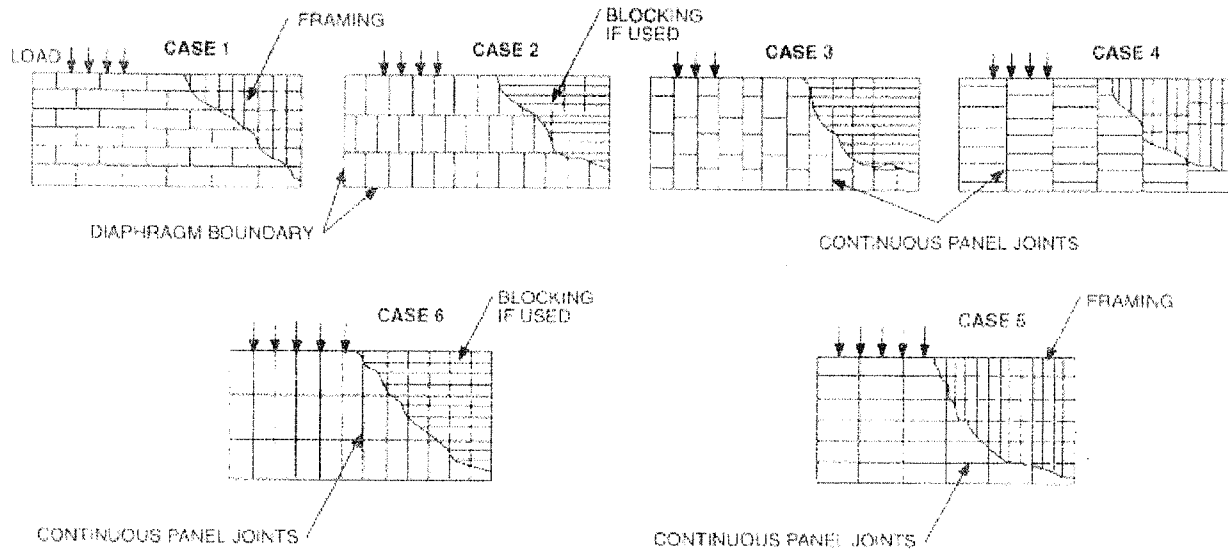
Exception: Wood structural panel diaphragm is permitted to be fastened over solid lumber planking or laminated decking, provided the panel joints and lumber planking or laminated decking joints do not coincide.

TABLE 2306.2.1(3)

**ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL DIAPHRAGMS WITH
FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^f
FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F**

PANEL GRADE	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES ^e (inches)	BLOCKED DIAPHRAGMS					UNBLOCKED DIAPHRAGMS		
					Fastener spacing (inches) at diaphragm boundaries (all cases) at continuous panel edges parallel to load ^b (Cases 3,4), and at all panel edges (Cases 5, 6) ^b					Fastener spaced 6" max. at supported edges ^b		
					6	4	2 ½ ^c	2 ^c	Case 1		(No unblocked edges or continuous joints parallel to load)	All other configurations (Cases 2, 3, 4, 5 and 6)
					A. Fastener spacing (inches) at other panel edges (Cases 1,2,3 and 4) ^b							
					6	6	4	4	3			
Structural I Grades	8d (2 ½" x 0.131")	1 3/8	3/8	2	270	360	530	600	240	180		
				3	300	400	600	675	265	200		
	10d ^d (3" x 0.148")	1 1/2	15/32	2	320	425	640	730	285	215		
				3	360	480	720	820	320	240		
Sheathing, single floor and other grades covered in DOC PS1 and PS2	6d ^e (2" x 0.113")	1 1/4	3/8	2	185	250	375	420	165	125		
				3	210	280	420	475	185	140		
	8d (2 ½" x 0.131")	1 3/8		2	240	320	480	545	215	160		
				3	270	360	540	610	240	180		
	8d (2 ½" x 0.131")	1 3/8	7/16	2	255	340	505	575	230	170		
				3	285	380	570	645	255	190		
	8d (2 ½" x 0.131")	1 3/8	15/32	2	270	360	530	600	240	180		
				3	300	400	600	675	265	200		
	10d ^d (3" x 0.148")	1 1/2		2	290	385	575	655	255	190		
				3	324	430	650	735	290	215		
10d ^d (3" x 0.148")	1 1/2	19/32	2	320	425	640	730	285	215			
			3	360	480	720	820	320	240			

TABLE 2306.2.1(3)—continued
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL
PANEL DIAPHRAGMS WITH FRAMING OF DOUGLAS FIR-LARCH,
OR SOUTHERN PINE^a FOR SEISMIC LOADING^f
FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F



For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
- b. Space fasteners maximum 12 inches o.c. along intermediate framing members (6 inches o.c. where supports are spaced 48 inches o.c.).
- c. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails at all panel edges shall be staggered where panel edge nailing is specified at 2 ½ inches o.c. or less.
- d. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails at all panel edges shall be staggered where both of the following conditions are met: (1) 10d nails having penetration into framing of more than 1 ½ inches and (2) panel edge nailing is specified at 3 inches o.c. or less.
- e. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
- f. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

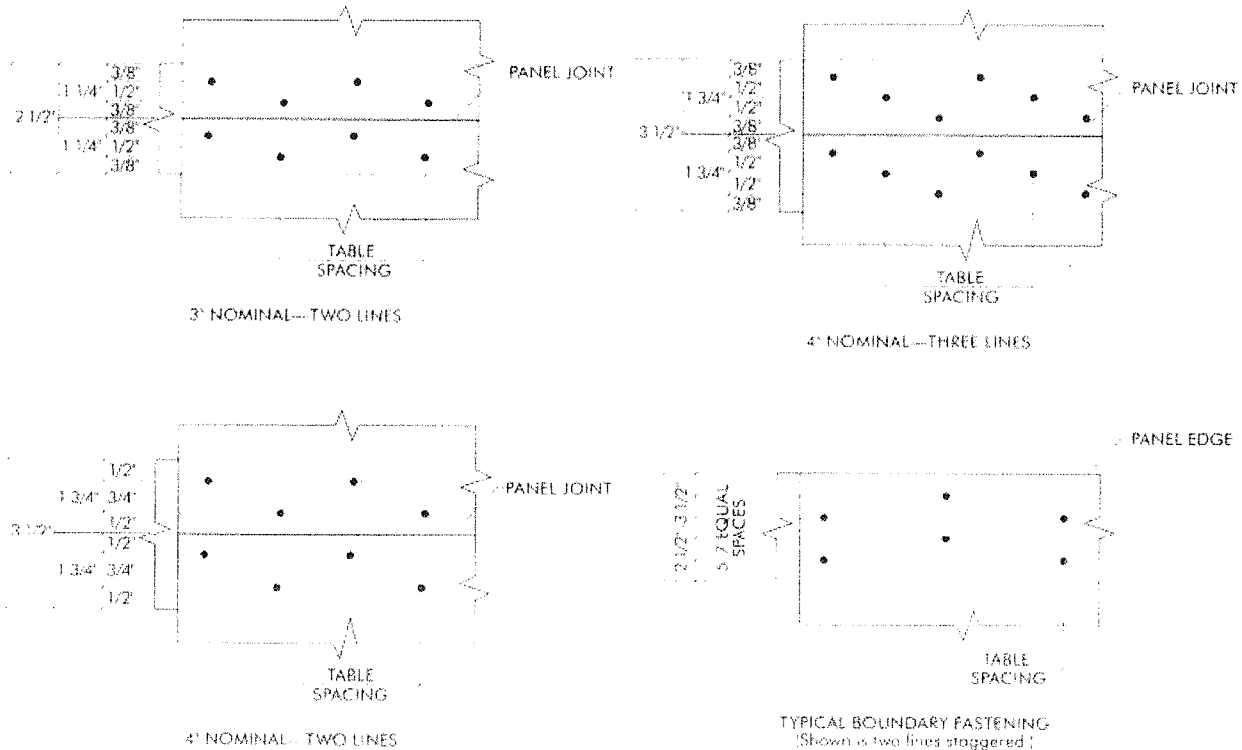
TABLE 2306.2.1(4)
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS
UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS
FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b,f,g}
FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F

PANEL GRADE ^c	COMMON NAIL SIZE	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM NOMINAL WIDTH OF FRAMING MEMBERS AT ADJOINING PANEL EDGES AND BOUNDARIES ^e (inches)	LINES OF FASTENERS	BLOCKED DIAPHRAGMS			
						Cases 1 and 2 ^d			
						Fastener Spacing Per Line at Boundaries (inches)			
						4		2 1/2	
						Fastener Spacing Per Line at Other Panel Edges (inches)			
						6	4	4	3
Structural I grades	10d common nails	1 1/2	15/32	3	2	605	815	875	1,150
				4	2	700	915	1,005	1,290
				4	3	875	1,220	1,285	1,395
			19/32	3	2	670	880	965	1,255
				4	2	780	990	1,110	1,440
				4	3	965	1,320	1,405	1,790
			23/32	3	2	730	955	1,050	1,365
				4	2	855	1,070	1,210	1,565
				4	3	1,050	1,430	1,525	1,800
Sheathing, single floor and other grades covered in DOC PS1 and PS2	10d common nails	1 1/2	15/32	3	2	525	725	765	1,010
				4	2	605	815	875	1,105
				4	3	765	1,085	1,130	1,195
			19/32	3	2	650	860	935	1,225
				4	2	755	965	1,080	1,370
				4	3	935	1,290	1,365	1,485
			23/32	3	2	710	935	1,020	1,335
				4	2	825	1,050	1,175	1,445
				4	3	1,020	1,400	1,480	1,565

For SI: 1 inch = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
- Fastening along intermediate framing members: Space fasteners a maximum of 12 inches on center, except 6 inches on center for spans greater than 32 inches.
- Panels conforming to PS1 or PS 2.
- This table gives shear values for Cases 1 and 2 as shown in Table 2306.2.1(3). The values shown are applicable to Cases 3, 4, 5 and 6 as shown in Table 2306.2.1(3), providing fasteners at all continuous panels edges are spaced in accordance with the boundary fastener spacing.
- The minimum nominal depth of framing members shall be 3 inches nominal. The minimum nominal width of framing members not located at boundaries or adjoining panel edges shall be 2 inches.
- High load diaphragms shall be subject to special inspection in accordance with Section 1704.6.1.
- For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.

TABLE 2306.2.1(4)—continued
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL BLOCKED DIAPHRAGMS
UTILIZING MULTIPLE ROWS OF FASTENERS (HIGH LOAD DIAPHRAGMS) WITH FRAMING OF DOUGLAS
FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b,f,g}
FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F



NOTE: SPACE PANEL END AND EDGE JOINT 1/8-INCH. REDUCE SPACING BETWEEN LINES OF NAILS AS NECESSARY TO MAINTAIN MINIMUM 3/8-INCH FASTENER EDGE MARGINS, MINIMUM SPACING BETWEEN LINES IS 3/8-INCH

Table 2306.3(2) is added to Chapter 23 of the CBC and Section 2306.3 and Table 2306.3 of the CBC are amended to read as follows:

2306.3 Wood structural panel shear walls. Wood structural panel shear walls shall be designed and constructed in accordance with AF&PA SDPWS. Wood structural panel shear walls are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.3(1). For structures assigned to Seismic Design Category D, E or F, the allowable shear capacities shall be set forth in Table 2306.3(2). The allowable shear capacities in Table 2306.3(1) are permitted to be increased 40 percent for wind design.

Wood structural panel shear walls used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall not be less than 4 feet by 8 feet (1219 mm by 2438 mm), except at boundaries and at changes in framing. Wood structural panel thickness for shear walls shall not be less than 3/8 inch thick and studs shall not be spaced at more than 16 inches on center.

The maximum allowable shear value for three-ply plywood resisting seismic forces in structures assigned to Seismic Design Category D, E or F is 200 pounds per foot (2.92 kN/m). Nails shall be placed not less than 1/2 inch (12.7 mm) in from the panel edges and not less than 3/8 inch (9.5mm) from the edge of the connecting members for shear greater than 350 pounds per foot (5.11kN/m). Nails shall be placed not less than 3/8 inch (9.5 mm) from panel edges and not less than 1/4 inch (6.4 mm) from the edge of the connecting members for shears of 350 pounds per foot (5.11kN/m) or less.

Wood structural panel shear walls fastened with staples shall not used to resist seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used for wood structural panel shear walls when the allowable shear values are substantiated by cyclic testing and approved by the building official.

Wood structural panel shear walls used to resist seismic forces in structures assigned to Seismic Design Category D, E or F shall be applied directly to the framing members.

TABLE 2306.3(1)
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH
FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR WIND OR SEISMIC LOADING^{b, h, i, j, l, m, n}

TABLE 2306.3(2)
ALLOWABLE SHEAR (POUNDS PER FOOT) FOR WOOD STRUCTURAL PANEL SHEAR WALLS WITH
FRAMING OF DOUGLAS FIR-LARCH OR SOUTHERN PINE^a FOR SEISMIC LOADING^{b, h, j, k, l}
FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E OR F

PANEL GRADE	MINIMUM NOMINAL PANEL THICKNESS (inch)	MINIMUM FASTENER PENETRATION IN FRAMING (inches)	ALLOWABLE SHEAR VALUE FOR SEISMIC FORCES PANELS APPLIED DIRECTLY TO FRAMING				
			COMMON NAIL SIZE	Fastener spacing at panel edges (inches)			
				6	4	3	2 ^e
Structural I sheathing	3/8	1 3/8	8d (2½"x0.131" common)	200	200	200	200
	7/16	1 3/8	8d (2½"x0.131" common)	255	395	505	670
	15/32	1 3/8	8d (2½"x0.131" common)	280	430	550	730
Sheathing, plywood siding ^g except Group 5 Species		1 1/2	10d (3"x0.148" common)	340	510	665 ^f	870
	3/8 ^c	1 3/8	8d (2½"x0.113")	160	200	200	200

For SI: 1 inch = 25.4 mm, 1 foot = 25.4 mm, 1 pound per foot = 14.5939 N/m.

- a. For framing of other species: (1) Find specific gravity for species of lumber in AF&PA NDS. (2) For nails find shear value from table above for nail size for actual grade and multiply value by the following adjustment factor: Specific Gravity Adjustment Factor = $[1 - (0.5 - SG)]$, where SG = Specific Gravity of the framing lumber. This adjustment factor shall not be greater than 1.
- b. Panel edges backed with 2-inch nominal or thicker framing. Install panels either horizontally or vertically. Space fasteners maximum 6 inches on center along intermediate framing members for 3/8-inch and 7/16-inch panels installed on studs spaced 24 inches on center. For other conditions and panel thickness, space fasteners maximum 12 inches on center on intermediate supports.
- c. 3/8-inch panel thickness or siding with a span rating of 16 inches on center is the minimum recommended where applied direct to framing as exterior siding. For grooved panel siding, the nominal panel thickness is the thickness of the panel measured at the point of nailing.
- d. Allowable shear values are permitted to be increased to values shown for 15/32-inch sheathing with same nailing provided (a) studs are spaced a maximum of 16 inches on center, or (b) panels are applied with long dimension across studs.
- e. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails shall be staggered where nails are spaced 2 inches on center or less.
- f. Framing at adjoining panel edges shall be 3 inches nominal or thicker, and nails shall be staggered where both of the following conditions are met: (1) 10d (3"x0.148") nails having penetration into framing of more than 1-1/2 inches and (2) nails are spaced 3 inches on center or less.
- g. Values apply to all-veneer plywood. Thickness at point of fastening on panel edges governs shear values.
- h. Where panels applied on both faces of a wall and nail spacing is less than 6 inches o.c. on either side, panel joints shall be offset to fall on different framing members. Or framing shall be 3-inch nominal or thicker at adjoining panel edges and nails at all panel edges shall be staggered.
- i. Where shear design values exceed 350 pounds per linear foot, all framing members receiving edge nailing from abutting panels shall not be less than a single 3-inch nominal member, or two 2-inch nominal members fastened together in accordance with Section 2306.1 to transfer the design shear value between framing members. Wood structural panel joint and sill plate nailing shall be staggered at all panel edges. See Section 4.3.6.1 and 4.3.6.4.3 of AF&PA SDPWS for sill plate size and anchorage requirements.
- j. Galvanized nails shall be hot dipped or tumbled.
- k. For shear loads of normal or permanent load duration as defined by the AF&PA NDS, the values in the table above shall be multiplied by 0.63 or 0.56, respectively.
- l. The maximum allowable shear value for three-ply plywood resisting seismic forces is 200 pounds per foot (2.92 kn/m).

Section 2306.7 of the CBC are amended to read as follows:

2306.7 Shear walls sheathed with other materials. Shear walls sheathed with portland cement plaster, gypsum lath, gypsum sheathing or gypsum board shall be designed and constructed in accordance with AF&PA SDPWS. Shear walls sheathed with these materials are permitted to resist horizontal forces using the allowable shear capacities set forth in Table 2306.7. Shear walls sheathed with portland cement plaster, gypsum lath, gypsum sheathing or gypsum board shall not be used to resist seismic forces in structures assigned to Seismic Design Category E or F.

Shear walls sheathed with lath, plaster or gypsum board shall not be used below the top level in a multi-level building for structures assigned to Seismic Design Category D.

Section 2308.3.4 of Chapter 23 of the CBC is amended to read as follows:

2308.3.4 Braced wall line support. Braced wall lines shall be supported by continuous foundations.

Exception: For structures with a maximum plan dimension not over 50 feet (15240 mm), continuous foundations are required at exterior walls only for structures not assigned to Seismic Design Category D, E or F.

Section 2308.12.2 of Chapter 23 of the CBC is amended to read as follows:

2308.12.2 Concrete or masonry. Concrete or masonry walls and stone or masonry veneer shall not extend above the basement.

Exception: Stone and masonry veneer is permitted to be used in the first story above grade plane in Seismic Design Category D, provided the following criteria are met:

1. Type of brace in accordance with Section 2308.9.3 shall be Method 3 and the allowable shear capacity in accordance with Table 2306.4.1 shall be a minimum of 350 plf (5108 N/m).
2. The bracing of the first story shall be located at each end and at least every 25 feet (7620 mm) o.c. but not less than 45 percent of the braced wall line.
3. Hold-down connectors shall be provided at the ends of braced walls for the first floor to foundation with an allowable design of 2,100 pounds (9341 N).
4. Cripple walls shall not be permitted.
5. Anchored masonry and stone wall veneer shall not exceed 5 inches (127 mm) in thickness, shall conform to the requirements of Chapter 14 and shall not extend more than 5 feet (1524 mm) above the first story finished floor.

Section 2308.12.4 and Table 2308.12.4 of the CBC are amended to read as follows:

2308.12.4 Braced wall line sheathing. Braced wall lines shall be braced by one of the types of sheathing prescribed by Table 2308.12.4 as shown in Figure 2308.9.3. The sum of lengths of braced wall panels at each braced wall line shall conform to Table 2308.12.4. Braced wall panels shall be distributed along the length of the braced wall line and start at not more than 8 feet (2438 mm) from each end of the braced wall line. Panel sheathing joints shall occur over studs or blocking. Sheathing shall be fastened to studs, top and bottom plates and at panel edges occurring over blocking. Wall framing to which sheathing used for bracing is applied shall be nominal 2 inch wide [actual 1½ inch (38 mm)] or larger members and spaced a maximum of 16 inches on center.

Exception: Braced wall panels required by Section 2308.12.4 may be eliminated when all of the following requirements are met:

1. One story detached Group U occupancies not more than 25 feet in depth or length.
2. The roof and three enclosing walls are solid sheathed with 15/32 inch nominal thickness wood structural panels with 8d common nails placed 3/8 inches from panel edges and spaced not more than 6 inches on center along all panel edges and 12 inches on center along intermediate framing members. Wall openings for doors or windows are permitted provided a minimum 4 foot wide wood structural braced panel with minimum height to length ratio of 2 to 1 is provided at each end of the wall line and that the wall line be sheathed for 50% of its length.

Wood structural panel sheathing shall be a minimum of 15/32 inch thick nailed with 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center and 12 inches on center along intermediate framing members.

Braced wall panel construction types shall not be mixed within a braced wall line.

TABLE 2308.12.4
WALL BRACING IN SEISMIC DESIGN CATEGORIES D AND E
(Minimum Length of Wall Bracing per each 25 Linear Feet of Braced Wall Line^a)

CONDITION	SHEATHING TYPE ^b	$S_{DS} < 0.50$	$0.50 \leq S_{DS} < 0.75$	$0.75 \leq S_{DS} \leq 1.00$	$S_{DS} > 1.00$
One Story	G-P ^c	10 feet 8 inches	14 feet 8 inches	18 feet 8 inches	25 feet 0 inches
	S-W ^d	5 feet 4 inches	8 feet 0 inches	9 feet 4 inches	12 feet 0 inches

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- a. Minimum length of panel bracing of one face of the wall for S-W sheathing shall be at least 4'-0" long or both faces of the wall for G-P sheathing shall be at least 8'-0" long; h/w ratio shall not exceed 2:1. For S-W panel bracing of the same material on two faces of the wall, the minimum length is permitted to be one-half the tabulated value but the h/w ratio shall not exceed 2:1 and design for uplift is required.
- b. G-P = gypsum board, portland cement plaster or gypsum sheathing boards; S-W = wood structural panels.
- c. Nailing as specified below shall occur at all panel edges at studs, at top and bottom plates and, where occurring, at blocking:
For 1/2-inch gypsum board, 5d (0.113 inch diameter) cooler nails at 7 inches on center;
For 5/8-inch gypsum board, No 11 gage (0.120 inch diameter) cooler nails at 7 inches on center;
For gypsum sheathing board, 1-3/4 inches long by 7/16-inch head, diamond point galvanized nails at 4 inches on center;
For gypsum lath, No. 13 gage (0.092 inch) by 1-1/8 inches long, 19/64-inch head, plasterboard at 5 inches on center;
For Portland cement plaster, No. 11 gage (0.120 inch) by 1½ inches long, 7/16-inch head at 6 inches on center;
- d. S-W sheathing shall be a minimum of 15/32" thick nailed with 8d common placed 3/8 inches from panel edges and spaced not more than 6 inches on center and 12 inches on center along intermediate framing members.

Section 2304.9.1 and Table 2304.9.1 of the CBC are amended to read as follows:

2304.9.1 Fastener requirements. Connections for wood members shall be designed in accordance with the appropriate methodology in Section 2301.2. The number and size of fasteners connecting wood members shall not be less than that set forth in Table 2304.9.1. Staple fasteners in Table 2304.9.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used to resist or transfer seismic forces when the allowable shear values are substantiated by cyclic testing and approved by the building official.

Add new footnote q to Table 2304.9.1.

q. Staples shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

Section 2308.12.5 of the CBC are amended to read as follows:

2308.12.5 Attachment of sheathing. Fastening of braced wall panel sheathing shall not be less than that prescribed in Table 2308.12.4 or 2304.9.1. Wall sheathing shall not be attached to framing members by adhesives. Staple fasteners in Table 2304.9.1 shall not be used to resist or transfer seismic forces in structures assigned to Seismic Design Category D, E or F.

Exception: Staples may be used to resist or transfer seismic forces when the allowable shear values are substantiated by cyclic testing and approved by the building official.

All braced wall panels shall extend to the roof sheathing and shall be attached to parallel roof rafters or blocking above with framing clips (18 gauge minimum) spaced at maximum 24 inches (6096 mm) on center with four 8d nails per leg (total eight 8d nails per clip). Braced wall panels shall be laterally braced at each top corner and at maximum 24 inches (6096 mm) intervals along the top plate of discontinuous vertical framing.

Amend Appendix J section J 101 by adding a new section J 101.3 Protection of Adjacent Properties that reads as follows:

The owner and permittee of any property on which grading has been performed and that requires a grading permit is responsible for the prevention of damage to adjacent property and no person shall excavate on land sufficiently close to the property line to endanger any adjoining public street, sidewalk, alley, or other public or private property without supporting and protecting such property from settling, cracking or other damage that might result. Special precautions approved by the building official shall be made to prevent imported or exported materials from being deposited on the adjacent public way and/or drainage courses. A 30 day excavation notice shall be provided as required by California Civil Code Section 829-834 when the excavation is of sufficient depth and proximity to adjacent lot structures.

Amend Appendix J section J 101 by adding a new section J101.4 Safety Precautions that reads as follows:

1. General

- a) If at any stage of work on an excavation or fill, the building official determines that the work has become or is likely to become dangerous to any person, or is likely to endanger any property, public or private, the building official shall be authorized to require safety precautions to be immediately taken by the property owner as a condition to continuing

such permitted work or to require cessation thereof forthwith unless and until it is made safe and to amend the plans for such work.

- b) Safety precautions may include, but shall not be limited to, specifying a flatter exposed slope or construction of additional drainage facilities, berms, terracing, compaction, cribbing, retaining walls or buttress fills, slough walls, desilting basins, check dams, benching, wire mesh and guniting, rock fences, revetments or diversion walls.
 - c) Upon the determination of the building official that such safety precautions during grading are necessary, the building official shall provide a notice and order to the permittee to implement same. After receiving such notice, oral or written, it is unlawful for the permittee or any person to proceed with such work contrary to such order.
2. Removal of Ground Cover
- a) The existing vegetative ground cover of any watershed in any hillside area shall not be destroyed, removed or damaged except for routine maintenance pursuant to lawful grading, use or occupancy of the property or to clear hazardous vegetation near structures and roads in areas designated as High Fire Hazard areas
 - b) Whenever ground cover is removed or damaged pursuant to a validly issued grading permit, the permittee shall restore and maintain the affected area with an approved ground cover, or shall accomplish such other erosion control protection measures as may be approved by the building official. Such erosion control shall be completed within thirty days after cessation of the grading work or other work pursuant to a validly issued building permit.
3. Maintenance of Protective Devices
- All devices used to protect hillside areas from erosion or landslide damage including, but not limited to, retaining walls, cribbing, terracing, surface and subsurface drainage structures, interceptor drains, check dams, and riprap shall be maintained in good condition and repair as approved by the building official at the time of completion of construction thereof.

Amend Appendix J section J 101 by adding a new section J101.5 Protection of Utilities that reads as follows:

The owner and permittee of any property on which grading has been performed and that requires a grading permit shall be responsible for the prevention of damage to any public utilities or services.

Amend Appendix J section J 103.2 Exemptions item 1 and add 1-A to read as follows:

1. An excavation which (a) is less than 2 feet (610 mm) in depth, or (b) which does not create a cut slope greater than 5 feet (1524 mm) in height and steeper than one unit vertical in two units horizontal (50 percent slope). This exception shall not apply to cut which exceeds 50 cubic yards (38.3 m³) or which changes the existing drainage pattern.

A. Fill that is less than one foot (305 mm) in depth and placed on natural terrain with a slope flatter than one unit vertical in 10 units horizontal (10 percent slope). This exception shall not apply when the fill exceeds 50 cubic yards (38.3 m³) or when the fill changes the existing drainage pattern.

Amend Appendix J section J 109.4 Drainage across property lines, to read as follows:

J 109.4 Site Drainage. All lots with new cut or fill; projects with concentrated drainage such as roof or deck drainage, and which change the existing drainage pattern shall have drainage that slopes a minimum of two percent to an approved drainage device or facility, or to a public way without crossing adjacent lots. Where used, the drainage device shall be an adequately designed system of catch basins, swales and/or drain lines, which conducts the water to a Public Way, without crossing adjacent lot's, via a non erosive device.

EXCEPTION: Where the slope of the underlying natural ground does not exceed three percent and the compacted fill is less than three feet (914 mm) in depth, the slope of the drainage pattern may be reduced to one percent. Compliance with California Building Code Section 1803.3 is still required, and the slope is not to be reduced per this section.

Appendix V – Voluntary Retrofit Standards are added to the CBC as follows:

APPENDIX V – SECTION V101 - VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING TILT-UP CONCRETE WALL BUILDINGS

SECTION V101. PURPOSE.

The purpose of this Chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on tilt-up concrete wall buildings designed under the building codes in effect prior to January 1, 1976.

The provisions of this Chapter are minimum voluntary standards for structural seismic resistance established primarily to reduce the risk of life loss or injury on both subject and adjacent properties and will not necessarily prevent loss of life or injury or prevent earthquake damage to an existing building which complies with these standards. This Chapter provides systematic procedures and standards for identification and classification of tilt-up concrete wall building based on the current use of the building.

SECTION V102. SCOPE.

The provisions of this Chapter shall apply to all buildings designed under building codes in effect prior to January 1, 1976, which, on the effective date of this Chapter have tilt-up concrete walls as defined herein.

SECTION V103. DEFINITIONS.

For purposes of this Chapter, the applicable definitions in Sections 1602, 1902, 2302 and Section 11.2 of ASCE 7, and the following shall apply:

COMMENCED CONSTRUCTION. Construction pursuant to a valid building permit has progressed to the point that one of the called inspections as required by the Department has been made and the work for which the inspection has been called has been judged by the Department to be substantial and has been approved by the Department.

DEPARTMENT. The Department of Building and Safety.

ESSENTIAL BUILDING. For purposes of this Chapter, any building housing a hospital or other medical facility having surgery or emergency treatment areas, fire or police stations, municipal government disaster operations, and communication centers.

TILT-UP CONCRETE WALL. A form of precast concrete panel construction either cast in the horizontal position at the site and after curing, lifted and moved into place in a vertical position, or cast off-site in a fabricator's shop.

SECTION V104. RATING CLASSIFICATIONS.

The rating classification as exhibited in Table No. 91-A is hereby established and each building within the scope of this Chapter shall be placed in one rating classification by the Department. The total occupant load as determined by Section 1004.1 for the entire building plus the occupant load of any adjacent building, which interconnects with the subject building or uses the subject building for exiting purposes, shall be used to determine the rating classification.

SECTION V105. ANALYSIS AND DESIGN.

For the purpose of this section, "**anchorage system(s)**" shall mean all structural elements, which supports the wall in the lateral direction, including wall anchorage and continuity tie (cross-tie) connectors in subdiaphragms and main diaphragms for retrofit and repairs.

V105.1. Wall Panel Anchorage. Concrete walls shall be anchored to all floors and roofs which provide lateral support for the wall. The anchorage shall provide a positive direct connection between the wall and floor or roof construction capable of resisting a horizontal force equal to 30 percent of the tributary wall weight for all buildings, and 45 percent of the tributary wall weight for essential buildings, or a minimum force of 250 pounds per linear foot of wall, whichever is greater. The required anchorage shall be based on the tributary wall panel assuming simple supports at floors and roof.

V105.2. Special Requirements for Wall Anchors and Continuity Ties. The steel elements of the wall anchorage systems and continuity ties shall be designed by the allowable stress design method using a load factor of 1.7. The 1/3 stress increase permitted by Section 12.4.3.3 of ASCE 7 shall not be permitted for materials using allowable stress design methods. The strength design specified in Section 1912, using a load factor of 2.0 in lieu of 1.4 for earthquake loading, shall be used for design of embedments in concrete. Wall anchors shall be provided to resist out-of-plane forces, independent of existing shear anchors.

EXCEPTION: Existing cast-in-place shear anchors may be used as wall anchors if the tie element can be readily attached to the anchors and if the engineer or architect can establish tension values for the existing anchors through the use of approved as-built plans or testing, and through analysis showing that the bolts are capable of resisting the total shear load while being acted upon by the maximum tension force due to earthquake

Expansion anchors are not allowed. Attaching the edge of plywood sheathing to steel ledgers is not considered as complying with the positive anchoring requirements of the Code; and attaching the edge of steel decks to steel ledgers is not considered as providing the positive anchorage of this Code unless testing and/or analysis are performed, which establish shear values for the attachment perpendicular to the edge of the deck.

V105.3. Development of Anchor Loads into the Diaphragm. Development of anchor loads into roof and floor diaphragms shall comply with Section 12.11 of ASCE 7.

EXCEPTION: If continuously tied girders are present, then the maximum spacing of the continuity ties is the greater of the girder spacing or 24 feet (7315 mm). In wood diaphragms, anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal, nor shall wood ledgers, top plates or framing be used in cross-grain bending or cross-grain tension. The continuous ties required by Section 12.11 of ASCE 7 shall be in addition to the diaphragm sheathing. Lengths of development of anchor loads in wood diaphragms shall be based on existing field nailing of the sheathing unless existing edge nailing is positively identified on the original construction plans or at the site.

At reentrant corners, continuity collectors may be required for existing return walls not designed as shear walls, to develop into the diaphragm a force equal to the lesser of the rocking or shear capacity of the return wall, or the tributary shear, but not exceeding the capacity of the diaphragm. Shear anchors for the return wall shall be commensurate with the collector force. If a truss or beam, other than rafters or purlins, is supported by the return wall or by a column integral with the return wall, an independent secondary column, is required to support the roof or floor members whenever rocking or shear capacity of the return wall is governing. Seismic deflection shall be determined at the return walls, and fins/canopies at entrances, to ensure deflection compatibility with the diaphragm, by either seismically isolating the element or attaching the element and integrating its load into the diaphragm.

V105.4. Anchorage at Pilasters. Anchorage of pilasters shall be designed for the tributary wall anchoring load per Section 9105.1 of this Code, considering the wall as a two-way slab. The edge of the two-way slab shall be considered “**fixed**” when there is continuity at pilasters, and considered “**pinned**” at roof or floor levels. The pilasters or the walls immediately adjacent to the pilasters shall be anchored directly to the roof framing such that the existing vertical anchor bolts at the top of the pilasters are by-passed without causing tension or shear failure at the top of the pilasters.

EXCEPTION: If existing vertical anchor bolts at the top of the pilasters are used for the anchorage, then additional exterior confinement shall be provided. The minimum anchorage at a floor or roof between the pilasters shall be that specified in Section 9105.1 of this Code.

V105.5. Symmetry. Symmetry of connectors in the anchorage system is required. Eccentricity may be allowed when it can be shown that all components of forces are positively resisted and justified by calculations or tests.

V105.6. Minimum Roof Member Size. Wood members used to develop anchorage forces to the diaphragm must be at least 3x for new construction and replacement. All such members must be checked for gravity and earthquake as part of the wall anchorage system. For existing buildings, the member check shall be without the 1/3 stress increase per Section 9108.2.

V105.7. Combination of Anchor Types. To repair and retrofit existing buildings, a combination of different anchor types of different behavior or stiffness shall not be permitted. The capacity of the new and existing connectors cannot be added.

V105.8. Prohibited Anchors. Usage of connectors that were bent and/or stretched from the intended use shall be prohibited.

V105.9. Crack and Damage Repairs, Evaluation of Existing Structural Alterations. The engineer shall report any observed structural conditions and structural damage that have imminent life safety effects on the buildings and recommend repairs. Evaluations and repairs shall be reviewed and approved by the Department. The engineer shall also evaluate the effects of alterations such as openings cut in existing wall panels without a permit, that may present immediate life safety hazard and correct when necessary.

V105.10. Miscellaneous. Existing mezzanines relying on the tilt-up walls for vertical and/or lateral support shall be anchored to the walls for the tributary mezzanine load. Walls depending on the mezzanine for lateral support shall be anchored per Sections 9105.1, 9105.2 and 9105.3.

EXCEPTION: Existing mezzanines that have independent lateral and vertical support need not be anchored to the walls. Existing interior masonry or concrete walls not designed as shear walls, that extend to the floor above or to the roof diaphragm shall also be anchored for out-of-plane forces per Sections 9105.1, 9105.2 and 9105.3 of this Code. In the in-plane direction, the walls may be isolated or shall be developed into the diaphragm for a lateral force equal to the lesser of the rocking or shear capacity of the wall, or the tributary shear but not exceeding the diaphragm capacity.

SECTION V110. INFORMATION REQUIRED ON PLANS.

V110.1. General. In addition to the seismic analysis required elsewhere in this Chapter, the licensed engineer or architect responsible for the seismic analysis of the building shall record the information required by this section on the approved plans.

V110.2. Information Required. The plans shall accurately reflect the results of the engineering investigation and design and show all pertinent dimensions and sizes for plan review and construction. The following shall be provided:

1. Floor plans and roof plans shall show existing framing construction, diaphragm construction, proposed wall anchors, cross-ties and collectors. Existing nailing, anchors, ties and collectors shall also be shown on the plans if these are part of the design, and these structural elements need to be verified in the field.
2. At elevations where there are alterations or damage, details shall show roof and floor heights, dimensions of openings, location and extent of existing damage, and proposed repair.
3. Typical wall panel sections with panel thickness, height, location of anchors shall be provided.
4. Details shall include existing and new anchors and the method of development of anchor forces into the diaphragm framing; existing and/or new cross-ties; existing and/or new or improved support of roof and floor girders at pilasters or walls.

V110.3. Engineer's or Architect's Statement.

The responsible engineer or architect shall state on the approved plans, the following:

1. I am responsible for this building's seismic strengthening design in compliance with the minimum seismic resistance standards of Chapter 91 of the California Building Code. and when applicable:
2. The Registered Deputy Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704 of the California Building Code.

SECTION V111. REQUIRED BUILDING MAINTENANCE.

Every building within the scope of this Chapter which has been analyzed to demonstrate compliance or structurally altered to comply with the minimum earthquake standards in this Chapter shall be maintained in conformity with the requirements of this Chapter in effect at the time of such analysis or structural alteration.

TABLE NO. 91-A RATING CLASSIFICATIONS Classification Occupant Load

Essential N/A
Group I 300 or more
Group II 100 to 299
Group III 50 to 99
Group IV Less than 50

Appendix V-Cripple Wall is hereby added to the CBC to read as follows:

CHAPTER V – SECTION V201 - VOLUNTARY EARTHQUAKE HAZARD REDUCTION IN EXISTING WOOD FRAME RESIDENTIAL BUILDINGS WITH WEAK CRIPPLE WALLS AND UNBOLTED SILL PLATES

SECTION V201. GENERAL.

V201.1. Purpose.

The provisions of this Chapter are intended to promote public safety and welfare by reducing the risk of earthquake-induced damage to existing wood-framed residential buildings. The voluntary minimum standards contained in this Chapter shall substantially improve the seismic performance of these residential buildings but will not necessarily prevent all earthquake damage. When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

Prior to 1960, most wood frame residential buildings were built with raised wood floors supported by short wood stud walls known as cripple walls. These cripple walls are typically braced with weak seismic materials such as portland cement plaster or horizontal wood siding. In addition, wood frame buildings built under building codes in effect prior to July 1938 were not required to be bolted to their foundations. Recent earthquakes have shown that if a building has weak cripple walls or is unbolted, it may fall off its foundation even in moderate earthquakes.

Fallen buildings have collapsed, caught fire or needed extensive repairs to restore their occupancy.

This Chapter sets prescriptive standards for strengthening of underfloor enclosures that shall be permitted by the Building Official without requiring plans or calculations prepared by an architect or an engineer. This Chapter also provides a design standard for the use of alternate materials or an alternate method of construction in lieu of the prescriptive standards. Construction documents for strengthening using alternate materials or methods shall be prepared by an architect or engineer.

V201.2. Scope. The provisions of this Chapter may be applied to light wood frame Group R Occupancies with no more than four dwelling units when they contain one or more of the structural weaknesses specified in Section V203.1.

The provisions of this Chapter do not apply to the buildings or elements of the buildings, listed below. These buildings or elements require analysis by an engineer or architect in accordance with Chapter 16 or other approved standards to determine appropriate strengthening.

1. Buildings with a lateral force resisting system using poles or columns embedded in the ground.
2. Cripple walls that exceed four feet (1234 mm) in height.
3. Buildings exceeding three stories in height and any three-story building with cripple wall studs exceeding 14 inches (360 mm) in height.
4. Buildings, or portions of buildings, constructed on a concrete slab on grade or constructed on or into a slope steeper than three horizontal to one vertical.
5. Buildings where the Building Official determines that conditions exist that are beyond the scope of the

requirements of this Chapter. The standard details approved by the Building Official and these prescriptive provisions are not intended to be the only acceptable strengthening methods permitted. Alternate details and methods shall be permitted when approved by the Building Official. Qualified Historical Buildings shall be permitted to use alternate building regulations of Section 8119 of this Code in order to preserve their original or restored architectural elements and features.

V201.3. Alternative Design Procedures. When analysis by an engineer or architect is required or provided for a building within the scope of this Chapter, that analysis shall be in accordance with all requirements of this Code except as provided in this Chapter. The design shall provide strengthening for any structural weakness listed in Section V203 that is at least equivalent to that provided by the prescriptive requirements of this Chapter with respect to strength, deflection, and capacity. The Building Official may require that sufficient evidence be submitted to substantiate that equivalence. The base shear may be determined in accordance with the following:

$$V = 0.1375 W \text{ (V2-1)}$$

Where:

V = The total design lateral force or shear at the base.

W = The total seismic dead load defined in Section 12.7.2 of ASCE 7

SECTION V202. DEFINITIONS.

For the purpose of this Chapter, in addition to the applicable definitions, symbols and notations in this Code, certain additional terms are defined as follows:

ADHESIVE ANCHOR is a fastener placed in hardened concrete or masonry that derives its holding strength from a chemical adhesive compound placed between the wall of the hole and the embedded portion of the anchor.

ANCHOR SIDE PLATE is a metal plate or plates used to connect a sill plate to the side of a concrete or masonry stem wall.

CRIPPLE WALL is a wood-framed stud wall extending from the top of the foundation to the underside of the lowest floor framing.

EXPANSION ANCHOR is a mechanical fastener placed in hardened concrete or assembled masonry, designed to expand in a self-drilled or pre-drilled hole of a specified size and engage the sides of the hole in one or more locations to develop shear and/or tension resistance to applied loads without grout, adhesive or drypack.

PERIMETER FOUNDATION is a foundation system which is located under the exterior walls of a building.

SNUG-TIGHT is as tight as an individual can torque a nut on a bolt by hand using a wrench with a 10-inch (254 mm) long handle and the point at which the full surface of the plate washer is contacting the wood member and slightly indents the wood surface.

UNREINFORCED MASONRY includes adobe, burned clay, concrete or sand-lime brick, hollow clay or concrete block, hollow clay tile, rubble, cut stone and unburned clay masonry walls in which the area of reinforcement is less than 50 percent of the minimum steel ratios required for reinforced masonry.

SECTION V203. STRUCTURAL WEAKNESSES.

V203.1. General. For the purpose of this Chapter, structural weaknesses shall be as specified below.

1. Sill plates or floor framing which are supported directly on the ground without an approved foundation system.
2. A perimeter foundation system which is constructed of wood posts supported on isolated pad footings.
3. Perimeter foundation systems that are not continuous.

EXCEPTIONS:

A. Existing single-story exterior walls not exceeding 10 feet (3084 mm) in length forming an extension of floor area beyond the line of an existing continuous perimeter foundation.

B. Porches, storage rooms and similar spaces not containing fuel-burning appliances.

4. A perimeter foundation system which is constructed of unreinforced masonry.

5. Sill plates which are not connected to the foundation or are connected with less than what is required by Section V204.3.1.

6. Cripple walls that are not braced in accordance with the requirements of Section V204.4 and Table V2-A.

SECTION V204. STRENGTHENING REQUIREMENTS.

V204.1. General.

V204.1.1. Scope. The structural weaknesses noted in Section V203 shall be strengthened in accordance with the requirements of this section. Strengthening work shall be allowed to include both new construction and alteration of existing construction. Except as provided here, all strengthening work and materials shall comply with the applicable provisions of this Code. All prescribe nailing in this Chapter shall be common nails. Alternate methods of strengthening shall be allowed provided the systems are designed by an engineer or architect and approved by the Building Official.

V204.1.2. Condition of Existing Wood Materials. All existing wood materials which will be a part of the strengthening work shall be in a sound condition and free from defects which substantially reduce the capacity of the member. Any wood material found to contain fungus infection shall be removed and replaced with new material. Any wood material found to be infested with insects or to have been infested shall be strengthened or replaced with new materials to provide a net dimension of sound wood at least equal to its undamaged original dimension.

V204.1.3. Floor Joists Not Parallel to Foundations. Floor joists framed perpendicular or at an angle to perimeter foundations shall be restrained by either a nominal two-inch (51 mm) wide continuous rim joist or a nominal two-inch (51 mm) wide full depth blocking between alternate joists in one- and two-story buildings, and between each joist in three-story buildings. Blocking for multistory buildings must occur at each joist space above a braced cripple wall panel. Existing connections at the top edge of an existing rim joist or blocking need not be verified. The bottom edge connection to either the foundation sill plate or top plate of a cripple wall shall be verified unless a supplemental connection is provided. The minimum existing bottom edge connection shall consist of 8d toe nails spaced six inches (152 mm) apart for a continuous rim joist or three 8d toe nails per block. When this minimum bottom edge connection is not present, or is not verified, a supplemental connection shall be provided.

When an existing continuous rim joist or the minimum existing blocking does not occur, new 1-1/8 inch (29 mm) wood structural panel blocking installed tightly between floor joists and nailed with 10d common nails at four inches on center to the sill or wall top plate shall be provided at the inside face of the cripple wall. In lieu of 1-1/8 inch (29 mm) wood structural panel blocking, tight fitting, full or near full depth two inches nominal width (51 mm) lumber blocking shall be allowed provided it does not split during installation. New blocking is not required where it will interfere with vents or plumbing which penetrates the wall.

V204.1.4. Floor Joists Parallel to Foundations. Where existing floor joists are parallel to the perimeter foundations, the end joist shall be located over the foundation and, except for required ventilation openings, shall be continuous and in continuous contact with any existing foundation sill plate or top plate of the cripple wall. Existing connections at the top edge connection of the end joist need not be verified; however, the bottom edge connection to either the foundation sill plate or the top plate of a cripple wall shall be verified unless a supplemental connection is provided. The minimum bottom edge connection shall be 8d toe nails spaced six inches (152 mm) apart. If this minimum bottom edge connection is not present or is not verified, a supplemental connection shall be provided.

V204.1.5. Supplemental Connections. Supplemental connections shall provide sufficient strength to transfer the seismic forces.

Framing anchors of minimum 18 gauge steel and 12 approved fasteners may be considered to meet this requirement when spaced 32 inches (813 mm) on center for one story buildings, 24 inches (610 mm) on center for two story buildings and 16 inches (406 mm) on center for three story buildings.

EXCEPTION: A supplemental connection is not required when:

1. The structural wood panel sheathing extends from the sill plate to the rim joist or blocking above.
2. The floor sheathing is nailed directly into the sill or top plate of the cripple wall.

V204.1.6. Single Top Plate Ties. When a single top plate exists in the cripple wall, all end joints in the top plate shall be tied. Ties shall be connected to each end of the discontinuous top plate and shall be equal to one of the following:

1. 3-inch by 6-inch (76 mm by 152 mm) by 0.036-inch-thick (0.9 mm) galvanized steel and nailed with six 8d nails at each end.
2. 1-1/2 inches (38 mm) by 12-inch (305 mm) by 0.058 inches (1.47 mm) galvanized steel nailed with six 16d nails at each end.
3. 2-inch by 4-inch by 12-inch wood blocking nailed with six 16d nails at each end.

V204.2. Foundations.

V204.2.1. New Perimeter Foundations. New perimeter foundations shall be provided for structures with the structural weaknesses noted in Items 1 and 2 of Section V203.1. Soil investigations or geotechnical studies are not required for this work unless the building shows signs of excessive settlement or creep.

V204.2.2. Foundation Evaluation by Engineer or Architect. Partial perimeter foundations or unreinforced masonry foundations shall be evaluated by an engineer or architect for the force levels noted in Formula (V2-1). Test reports or other substantiating data to determine existing foundation material strengths shall be submitted for review. When approved by the Building

Official, these foundation systems may be strengthened in accordance with the recommendations included with the evaluation in lieu of being replaced.

EXCEPTION: In lieu of testing existing foundations to determine material strengths and when approved by the Building Official, a new nonperimeter foundation system, designed for the forces noted in Formula (V2-1), may be used to resist all exterior wall lateral forces.

V204.2.3. Details for New Perimeter Foundations. All new perimeter foundations shall be continuous and constructed according to the standards for new buildings.

EXCEPTIONS:

1. When approved by the Building Official, the existing clearance between existing floor joists or girders and existing grade below the floor need not comply with Section 2304.11.2.1. This exception shall not be permitted when buildings are relocated on new foundations.
2. When approved by the Building Official, and when designed by an engineer or architect, partial perimeter foundations may be used in lieu of a continuous perimeter foundation.

V204.3. Foundation Sill Plate Anchorage.

V204.3.1. Existing Perimeter Foundations. When the building has an existing continuous perimeter foundation, all perimeter wall sill plates shall be connected to the foundation in accordance with Table V2-A and this section. Anchors shall be installed with the plate washer installed between the nut and the sill plate. The nut shall be tightened to a snuggest condition after curing is complete for adhesive anchors and after expansion wedge engagement for expansion anchors. The installation of nuts on all anchors shall be subject to verification by the Building Official. Torque testing shall be performed for 25 percent of all adhesive or expansion anchors. Minimum test values shall be 30 foot pounds (41 N-m) for 1/2-inch (12.7 mm) and 40 foot pounds (55 N-m) for 5/8-inch (15.9 mm) diameter anchors.

Anchor side plates shall be permitted when conditions prevent anchor installation vertically through the sill plate. Anchor side plates shall be spaced as required for adhesive or expansion anchors but only one anchor side plate is required on individual pieces of sill plate less than 32 inches (813 mm) in length. Wood structural panel shims shall be used on sill plates for single plate anchor side plates when the foundation stem wall is from 3/16 inch (4.8 mm) to 3/4 inch (19 mm) wider than the sill plate.

The shim length shall extend a minimum of two inches (50.8 mm) past each end of the anchor side plate. Two plate anchor side plates shall be used when the total thickness of the required shim exceeds 3/4 inch (19 mm). All anchor side plates, which use lag or wood screws shall pre-drill the sill plate to prevent splitting as required by Section 2304.9. Lag or wood screws shall be installed in the center of the thickness of the existing sill plate. Expansion anchors shall not be used in unreinforced masonry or concrete or masonry grout of poor quality. Adhesive anchors shall be required when expansion anchors will not tighten to the required torque or their installation causes surface cracking of the foundation wall.

V204.3.2. Placement of Anchors. Anchors shall be placed within 12 inches (305 mm), but not less than nine inches (229 mm), from the ends of sill plates and shall be placed near the center

of the stud space closest to the required spacing. New sill plates may be installed in pieces when necessary because of existing conditions. The minimum length of new sill plate pieces shall be 30 inches (762 mm).

EXCEPTION: Where physical obstructions such as fireplaces, plumbing or heating ducts interfere with the placement of an anchor, the anchor shall be placed as close to the obstruction as possible, but not less than nine inches (229 mm) from the end of the plate. Center-to-center spacing of the anchors shall be reduced as necessary to provide the minimum total number of anchors required based on the full length of the wall. Center-to-center spacing shall not be less than 12 inches (305 mm).

V204.3.3. New Perimeter Foundations. Sill plates for new perimeter foundations shall be anchored as required by Section 1805.6.

V204.4. Cripple Wall Bracing.

V204.4.1. General.

Exterior cripple walls, not exceeding four feet (1219 mm) in height shall use the prescriptive bracing method listed below. Cripple walls more than four feet (1219 mm) in height require analysis by an engineer or architect in accordance with Chapter 16.

V204.4.1.1. Sheathing Requirements.

Wood structural panel sheathing shall not be less than 15/32-inch (12 mm) thick. When used, plywood panels shall be constructed of five or more plies. All wood structural panels shall be nailed with 8d common nails spaced four inches (102 mm) on center at all edges and at 12 inches (305 mm) on center at each intermediate support with not less than two nails for each stud. Nails shall be driven so that their head or crown is flush with the surface of the sheathing and shall penetrate the supporting member a minimum of 1-1/2 inch (38 mm). When a nail fractures the surface, it shall be left in place and not counted as part of the required nailing. A new 8d nail shall be located within two inches (51 mm) of the discounted nail and hand driven flush with the sheathing surface.

EXCEPTION: No. 6 × 1-1/2 inch (38 mm) wood screws may be used for sheathing nailing when bracing materials are installed on the interior face of studs and cement plaster or other brittle finishes are on the exterior of the sheathed wall. All horizontal joints must occur over nominal two-inch by four-inch (51 mm by 102 mm) blocking installed with the nominal four-inch (102 mm) dimension against the face of the plywood. All vertical joints must occur over studs. Vertical joints at adjoining pieces of wood structural panels shall be centered on existing studs such that there is a minimum 1/8 inch (3.2 mm) between the panels. Nails shall be placed a minimum of 1/2 inch (12.7 mm) from the edges of the existing stud. When such edge distance cannot be maintained because of the width of the existing stud, a new stud shall be added adjacent to the existing and connected with 16d common nails at eight inches (206 mm) on center. A minimum of three such nails shall be provided.

V204.4.2. Distribution and Amount of Bracing.

See Table V2-A for the distribution and amount of bracing required. Bracing for a building with three or more floor levels above cripple wall studs exceeding 14 inches (356 mm) in height must be designed in accordance with Chapter 16.

The braced panel must be at least two times the height of the cripple stud wall but not less than 48 inches (1219 mm) in width. All panels along a wall shall be nearly equal in length and shall be nearly equally spaced along the length of the wall. Braced panels at ends of walls shall be located as near the end as possible.

Where physical obstructions such as fireplaces, plumbing or heating ducts interfere with the placement of cripple wall bracing, the bracing shall then be placed as close to the obstruction as possible. The total amount of bracing required shall not be reduced because of obstructions but the required length of bracing need not exceed the length of the wall.

Underfloor ventilation openings shall be maintained in accordance with Section 2306.7. Braced panels may include underfloor ventilation openings when the height of the solid portion of the panel meets or 75 percent of the height of the cripple stud wall. When the minimum amount of bracing prescribed in Table V2-A cannot be installed due to obstructions along any wall, the bracing must be designed by an architect or engineer in accordance with Section 1203.3.

V204.4.3. Stud Space Ventilation. When bracing materials are installed on the interior face of studs forming an enclosed space between the new bracing and existing exterior finish, each braced stud space must be ventilated. Adequate ventilation and access for future inspection shall be provided by drilling on two-inch to three-inch (51 mm to 76 mm) diameter round hole through the sheathing nearly centered between each stud at the top and bottom of the cripple wall. Such holes should be spaced a minimum of one-inch (25 mm) clear from the sill or top plates. In stud spaces containing sill bolts, the hole shall be located on the center line of the sill bolt but not closer than one-inch (25 mm) clear from the nailing edge of the sheathing.

When existing blocking occurs within the stud space, additional ventilation holes shall be placed above and below the blocking or the existing block shall be removed and a new nominal two-inch (51 mm) by four-inch (102 mm) block installed with the nominal four-inch (102 mm) dimension against the face of the plywood. For stud heights less than 18 inches (457 mm) only one ventilation hole need be provided.

V204.4.4. Existing Underfloor Ventilation. Existing underfloor ventilation shall not be reduced without providing equivalent new ventilation as close to the existing as possible. New sheathing may be installed around existing vent openings in braced panels when the length of the panel is increased a distance equal to the length of the vent opening or one stud space minimum.

EXCEPTION: For residential buildings with a post and pier foundation system where a new continuous perimeter foundation system is being installed, ventilation shall be provided in accordance with this Code.

SECTION V205. QUALITY CONTROL.

V205.1. Inspection by the Department. All work shall be subject to inspection by the Building Official including, but not limited to:

1. Placement and installation of new adhesive or expansion anchors or anchor side plates installed in existing foundations.
2. Placement of required blocking and framing anchors.

3. Installation and nailing of new cripple wall bracing.

The torque testing of sill plate anchors per Section V204.3.1 shall be performed by the building inspector.

V205.2. Special Inspection.

Special inspection is not required for sill plate anchors installed in existing foundations regulated by the provisions of this Chapter. Any work may be subject to special inspection when required by the Building Official or when so designated by the architect or engineer of record.

V205.3. Structural Observation.

Structural observation is not required for work done under the prescriptive provisions of this Chapter. When construction documents for strengthening are prepared by an architect or engineer and alternate materials or methods are used, structural observation shall be provided as required in Section 1709.

V205.4. Engineer's or Architect's Statement.

When an alternative design is provided per Section V201.3, the responsible engineer or architect shall place the following statement on the approved plans:

1. "I am responsible for this building's seismic strengthening design for the underfloor cripple walls and sill bolting in compliance with the minimum seismic resistance standards of Appendix Chapter V201 of the Building Code." or when applicable:
2. "The Registered Deputy Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704 of the El Segundo Building Code."

TABLE V2-A

SILL PLATE ANCHORAGE AND CRIPPLE WALL BRACING 1,2,3

Number of Stories above Cripple Walls Minimum Sill Plate Connection and Maximum Spacing Amount of Wall Bracing

One Story Adhesive or expansion anchors shall be 1/2-inch (12.7 mm) minimum diameter spaced at six feet (1829 mm) maximum center to center. Each end and not less than 50% of the wall length. Two Story Adhesive or expansion anchors shall be 1/2-inch (12.7 mm) minimum diameter spaced at four feet (1219 mm) maximum center to center; or 5/8 inch (15.9 mm) spaced at six feet maximum center to center. Each end and not less than 70% of the wall length. Three Story Adhesive or expansion anchors shall be 1/2-inch (12.7 mm) minimum diameter spaced at two feet eight inches (813 mm) maximum center to center; or 5/8-inch (15.9 mm) diameter spaced at four feet (1219 mm) maximum center to center. 100% of the wall length. 1. Plate washers for use with adhesive or expansion anchors shall be two-inch (51 mm) by two-inch (51 mm) by 3/16-inch (4.8 mm) for 1/2-inch (12.7 mm) diameter anchors and 2-1/2-inch (64 mm) by 2-1/2-inch (64 mm) by 1/4-inch (6 mm) for 5/8 inch (15.9 mm) diameter anchors. 2. Existing sill plate anchor bolts shall be permitted to provide all or a portion of the sill plate connection requirement if:

- a. the anchor bolt is cast in concrete and in sound condition, and:
 - b. the diameter size and maximum spacing meets or exceeds the requirements of Table V2-A, and:
 - c. a new plate washer conforming to footnote 1 is installed, and:
 - d. the sill plate is connected to a snug tight condition and torque tested per Section V204.3.1.3.
- Anchor side plates shall be permitted when conditions prevent anchor installation vertically through the sill plate

APPENDIX V301 - VOLUNTARY – EARTHQUAKE HAZARD REDUCTION IN EXISTING REINFORCED CONCRETE AND REINFORCED MASONRY WALL BUILDINGS WITH FLEXIBLE DIAPHRAGMS

SECTION V301. PURPOSE.

The purpose of this Chapter is to promote public safety and welfare by reducing the risk of death or injury that may result from the effects of earthquakes on reinforced concrete and masonry wall buildings with flexible diaphragms designed under the building codes in effect prior to January 1, 1995. These buildings are potentially hazardous and prone to significant damage, including possible collapse, in a moderate to major earthquake. These structures typically shelter large numbers of persons and property for retail, food markets, food distribution centers, warehousing, aerospace, industrial/manufacturing and general business and office use. Their continued use after an earthquake is also essential to the local economy and its post-earthquake recovery.

The provisions of this Chapter are minimum standards for structural seismic resistance established primarily to reduce the risk of loss of life or injury on both subject and adjacent properties and will not necessarily prevent all earthquake damage to an existing building which complies with these standards. This Chapter shall not require existing electrical, plumbing, mechanical or fire safety systems to be altered unless they constitute a hazard to life or property.

This Chapter provides voluntary retrofit standards for deficient wall anchorage systems on structures that are not subject to the mandatory provisions of Chapter When fully followed, these standards will strengthen the portion of the structure that is most vulnerable to earthquake damage.

SECTION V302. SCOPE.

The voluntary provisions of this Chapter shall apply to existing buildings of the following types:

1. Cast-in-place reinforced concrete or masonry wall buildings with flexible diaphragms designed under building codes in effect prior to January 1, 1995.
2. Tilt-up concrete wall buildings with flexible diaphragms designed under the building codes in effect prior to January 1, 1995, but after January 1, 1976.

All tilt-up concrete wall buildings designed under the Building Code in effect prior to January 1, 1976 are subject to the mandatory provisions of this Chapter All existing reinforced masonry or concrete buildings with flexible diaphragms, including tilt-up concrete wall buildings, designed

under the Building Code in effect on or after January 1, 1995, shall be designed in conformance with Chapter 16.

SECTION V303. DEFINITIONS.

For the purposes of this Chapter, the applicable definitions in Chapter 2, Sections 1602, 1613.2, 1902 and 2302 of this Code; Sections 1.2, 3.1.1, 4.1, 5.2, 6.2 and 11.2 of ASCE 7, and the following shall apply:

ANCHORAGE SYSTEM is the system of all structural elements and connections, which support the concrete or masonry wall in the lateral direction, including diaphragms and subdiaphragms, wall anchorage and continuity or cross tie connectors in subdiaphragms and main diaphragms.

COMMENCED CONSTRUCTION is construction pursuant to a valid building permit that has progressed to the point that one of the called inspections as required by the Department has been made and the work for which the inspection has been called has been judged by the Department to be substantial and has been approved by the Department.

EXISTING BUILDING is an erected building for which a legal building permit and a certificate of occupancy have been issued.

FLEXIBLE DIAPHRAGM is any diaphragm constructed of wood structural panel, diagonal or straight wood sheathing, metal decking without a structural concrete topping, or horizontal rod bracing.

HISTORICAL BUILDING is any building designated or currently in the process of being designated as a historical building by an appropriate federal, state or City jurisdiction.

REINFORCED CONCRETE WALL is a concrete wall that has 50 percent or more of the reinforcing steel required for reinforced concrete in Chapter 19.

REINFORCED MASONRY WALL is a masonry wall that has 50 percent or more of the reinforcing steel required by Item 2.3 of Section 2106.4.

RETROFIT is strengthening or structurally improving the lateral force resisting system of an existing building by alteration of existing or addition of new structural elements.

TILT-UP CONCRETE WALL is a form of precast concrete panel construction either cast in the horizontal position at the site and after curing, lifted and moved into place in a vertical position, or cast off-site in a fabricator's shop.

SECTION V304. ANALYSIS AND DESIGN.

V304.1. Wall Panel Anchorage. Concrete and masonry walls shall be anchored to all floors and roofs which provide lateral support for the wall. The anchorage shall provide a positive direct connection between the wall and floor or roof construction capable of resisting a horizontal force equal to 30 percent of the tributary wall weight for all buildings, and 45 percent of the tributary wall weight for essential buildings, or a minimum force of 250 pounds per linear foot of wall, whichever is greater. The required anchorage shall be based on the tributary wall panel assuming simple supports at floors and roof.

EXCEPTION: An alternate design may be approved by the Building Official when justified by well established principles of mechanics.

V304.2. Special Requirements for Wall Anchors and Continuity Ties. The steel elements of the wall anchorage systems and continuity ties shall be designed by the allowable stress design method using a load factor of 1.7. The 1/3 stress increase permitted by Section 1605.3.2 shall not be permitted for materials using allowable stress design methods. The strength design specified in Section 1912.1, using a load factor of 2.0 in lieu of 1.4 for earthquake loading, shall be used for the design of embedment in concrete. Wall anchors shall be provided to resist out-of-plane forces, independent of existing shear anchors.

EXCEPTION: Existing cast-in-place shear anchors may be used as wall anchors if the tie element can be readily attached to the anchors and if the engineer or architect can establish tension values for the existing anchors through the use of approved as-built plans or testing, and through analysis showing that the bolts are capable of resisting the total shear load while being acted upon by the maximum tension force due to seismic loading. Criteria for analysis and testing shall be determined by the Building Official.

Expansion anchors are not allowed without special approval of the Building Official. Attaching the edge of plywood sheathing to steel ledgers is not considered as complying with the positive anchoring requirements of the Code; and attaching the edge of steel decks to steel ledgers is not considered as providing the positive anchorage of this Code unless testing and analysis are performed, which establish shear values for the attachment perpendicular to the edge of the deck.

V304.3. Development of Anchor Loads into the Diaphragm. Development of anchor loads into roof and floor diaphragms shall comply with Section 12.11.2.2.3 of ASCE 7.

EXCEPTION: If continuously tied girders are present, then the maximum spacing of the continuity ties is the greater of the girder spacing or 24 feet (7315 mm). In wood diaphragms, anchorage shall not be accomplished by use of toe nails or nails subject to withdrawal, nor shall wood ledgers, top plates or framing be used in cross-grain bending or cross-grain tension. The continuous ties required by Section 12.11.2.2.3 of ASCE 7 shall be in addition to the diaphragm sheathing. Lengths of development of anchor loads in wood diaphragms shall be based on existing field nailing of the sheathing unless existing edge nailing is positively identified on the original construction plans or at the site. At reentrant corners, continuity collectors may be required for existing return walls not designed as shear walls, to develop into the diaphragm a force equal to the lesser of the rocking or shear capacity of the return wall, or the tributary shear but not exceeding the capacity of the diaphragm. Shear anchors for the return wall shall be commensurate with the collector force. If a truss or beam other than rafters or purlins is supported by the return wall or by a column integral with the return wall, an independent secondary column is required to support the roof or floor members whenever rocking or shear capacity of the return wall is governing.

V304.4. Anchorage at Pilasters. Anchorage of pilasters shall be designed for the tributary wall anchoring load per Section V304.1 of this Code, considering the wall as a two-way slab. The edge of the two-way slab shall be considered “**fixed**” when there is continuity at pilasters, and considered “**pinned**” at roof or floor levels. The pilasters or the walls immediately adjacent to the pilasters shall be anchored directly to the roof framing such that the existing vertical anchor

bolts at the top of the pilasters are by-passed without causing tension or shear failure at the top of the pilasters.

EXCEPTION: If existing vertical anchor bolts at the top of the pilasters are used for the anchorage, then additional exterior confinement shall be provided. The minimum anchorage at a floor or roof between the pilasters shall be that specified in Section V304.1 of this Code.

V304.5. Symmetry. Symmetry of connectors in the anchorage system is required. Eccentricity may be allowed when it can be shown that all components of forces are positively resisted and justified by calculations or tests.

V304.6. Minimum Roof Member Size. Wood members used to develop anchorage forces to the diaphragm shall be of minimum nominal width for new construction and replacement. All such members must be designed for gravity and earthquake forces as part of the wall anchorage system. For existing structural members, the allowable stresses shall be without the 1/3 stress increase per Section V304.2.

V304.7. Combination of Anchor Types. To repair and retrofit existing buildings, a combination of different anchor types of different behavior or stiffness shall not be permitted. The capacity of the new and existing connectors cannot be added.

V304.8. Prohibited Anchors. Usage of connectors that were bent or stretched from the intended use shall be prohibited.

V304.9. Crack and Damage Repairs, Evaluation of Existing Structural Alterations. The engineer or architect shall report any observed structural conditions and structural damage that have imminent life safety effects on the buildings and recommend repairs. This includes alterations such as openings cut in existing wall panels without a building permit. Evaluations and repairs shall be reviewed and approved by the Department.

V304.10. Miscellaneous. Existing mezzanines relying on the concrete or masonry walls for vertical or lateral support shall be anchored to the walls for the tributary mezzanine load. Walls depending on the mezzanine for lateral support shall be anchored per Sections V304.1, V304.2 and V304.3 of this Code.

EXCEPTION: Existing mezzanines that have independent lateral and vertical support need not be anchored to the concrete or masonry walls. Existing interior masonry or concrete walls not designed as shear walls, which extend to the floor above or to the roof diaphragm shall also be anchored for out-of-plane forces per Section V304.1, V304.2 and V304.3 of this Code. In the in-plane direction, the walls may be isolated or shall be developed into the diaphragm for a lateral force equal to the lesser of the rocking or shear capacity of the wall, or the tributary shear but not exceeding the diaphragm capacity.

V304.11. Historical Buildings. Qualified historical buildings shall be permitted to use alternate building standards or deviations from this Chapter in order to preserve their original or restored architectural elements and features.

SECTION V305. MATERIALS OF CONSTRUCTION.

All materials permitted by this Code.

SECTION V306. INFORMATION REQUIRED ON PLANS.

V306.1. General. In addition to the seismic analysis required elsewhere in this Chapter, the licensed engineer or architect responsible for the seismic analysis of the building shall record the information required by this section on the approved plans.

V306.2. Information Required. The plans shall accurately reflect the results of the engineering investigation and design and show all pertinent dimensions and sizes for plan review and construction. The following shall be provided:

1. Floor plans and roof plans shall show the existing framing construction, diaphragm construction, proposed wall anchors, cross-ties and collectors. Existing nailing, anchors, ties and collectors shall also be shown on the plans if these are part of the design, and these structural elements need to be verified in the field.
2. At elevations where there is alterations or damage, the details shall show the roof and floor heights, dimensions of openings, location and extent of existing damage, and proposed repair.
3. Typical concrete or masonry wall sections with wall thickness, height, and location of anchors shall be provided.
4. Details shall include the existing and new anchors and the method of development of anchor forces into the diaphragm framing; existing and new cross-ties, existing and new or improved support of the roof and floor girders at pilasters or walls.

V306.3. Engineer's or Architect's Statement. The responsible engineer or architect shall state on the approved plans, the following:

1. "I am responsible for this building's seismic strengthening design of the tilt-up concrete wall anchorage system in compliance with the minimum seismic resistance standards of Chapter V3 of the EI Segundo Building Code." or when applicable:
2. "The Registered Deputy Inspector, required as a condition of the use of structural design stresses requiring continuous inspection, will be responsible to me as required by Section 1704 of the EI Segundo Building Code."

Section 5. ESMC Section 13-1-4 is amended in its entirety to read as follows:

13-1-4 Residential Noise Insulation Standards; Further Amendments to Code:

CBC Section 1255 is added to read as follows:

SECTION 1255. Residential Noise Insulation Standards

Airport Noise Sources

1255.01: Noise Insulation Requirements For New Construction

1255.02: Purpose And Scope:

The purpose of this section is to establish minimum noise insulation performance standards for new residential dwelling units and additions of habitable rooms to existing residential dwelling units to protect public health, safety, and welfare from the effects of excessive noise, including without limitation, indoor quality of life, speech interference, and sleep disruption.

1255.03: Applicability: This section applies to all newly constructed residences and habitable room additions to existing residences.

1255.04: Definitions: For purposes of this section, the following words must have the following meaning:

"Community Noise Equivalent Level (CNEL)" means the noise measure defined in 21 Code of California Regulations § 5001(d), and any successor regulation or amendment.

"Habitable Room" means a room that is a space in a structure for living, sleeping, eating, or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space, garages, and similar areas are not considered habitable space.

"LAX" means Los Angeles International Airport.

"Noise Impact Boundary For LAX" means the area around LAX as defined in 21 California Code of Regulations § 5001(1), and any successor regulation or amendment. The city's building safety department must at all times maintain a current map of the noise impact boundary.

"Residence" means any occupancy group R building as used in El Segundo title 15 of the El Segundo municipal code.

1255.05: Standards: Any new residence or addition of one or more habitable rooms to an existing residence that is within the noise impact boundary for LAX must be designed to ensure that internal noise levels due to LAX do not exceed of 45 dB CNEL. This standard may be satisfied in two ways: (1) by performing the acoustical analysis described in section E, below, or (2) by employing the prescribed construction methods described in section F, below.

1255.06: Acoustical Analysis: A building permit application for a new residence or addition of one or more habitable rooms to an existing residence must comply with the minimum noise insulation performance standards established in this section if it includes an acoustical analysis demonstrating that the proposed design will ensure that internal noise levels due to LAX aircraft noise will not exceed 45 dB CNEL. The acoustical analysis is subject to verification by the building official, who has the discretion to require post-construction/pre-occupancy acoustic measurement to verify compliance with the 45 dB CNEL standard.

- A. The acoustical analysis must be prepared by or under the supervision of a person experienced in the field of acoustical engineering. The analysis must consider and include: the topographical relationship between LAX aircraft noise sources and the dwelling site, the characteristics of those noise sources, predicted noise spectra and levels at the exterior of the dwelling site, the basis for this prediction (measured or obtained from published data), the noise insulation measures to be employed, and the effectiveness of the proposed noise insulation measures.
- B. If the interior allowable noise levels are to be met by requiring that windows be unopenable or closed, the design for the structure must also specify a ventilation or air-conditioning system to provide a habitable interior environment. The ventilation system must not compromise the interior room noise reduction.

1255.07: Prescribed Construction Methods: A building permit application for a new residence or addition of one or more habitable rooms to an existing residence must comply with the minimum noise insulation performance standards established in this section if the design incorporates the following construction methods.

Construction Methods In The 70 dB CNEL And Greater Noise Zone

1255.08: Exterior Walls: New walls that form the exterior portion of habitable rooms must be constructed as follows:

- A. Studs must be at least 4 inches in nominal depth.
- B. Exterior finish must be stucco, minimum $\frac{7}{8}$ -inch thickness, brick veneer, masonry, or any siding material allowed by this code. Wood or metal siding must be installed over $\frac{1}{2}$ -inch minimum solid sheathing.

- C. Masonry walls with a surface weight of less than 40 pounds per square foot must require an interior supporting studwall that is finished with at least $\frac{5}{8}$ -inch thick gypsum wall board or plaster.
- D. Wall insulation must be at least R-11 glass fiber or mineral wool and must be installed continuously throughout the stud space.
- E. Exterior solid sheathing must be covered with overlapping asphalt felt.
- F. Interior wall finish must be at least $\frac{5}{8}$ -inch thick gypsum wall board or plaster.

1255.09: Exterior Windows

- A. Openable Windows: All openable windows in the exterior walls of habitable rooms must have a laboratory sound transmission class rating of at least STC 40 dB and must have an air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.
- B. Fixed Windows: All fixed windows in the exterior walls of habitable rooms must:
 - 1. Have a sound transmission class rating of at least STC 40 dB, or
 - 2. Must be $\frac{5}{8}$ -inch laminated glass with STC rating of 40 dB and must be set in non-hardening glazing materials, or
 - 3. Must be glass block at least $3\frac{1}{2}$ inches thick.
- C. The total areas of glazing in rooms used for sleeping must not exceed 20% of the wall area.

1255.10: Exterior Doors

- A. Exterior hinged doors to habitable rooms that are directly exposed to aircraft noise and are facing the source of the noise must be a door and edge seal assembly that has a laboratory sound transmission class of at least STC 40 dB.
- B. Exterior hinged doors to habitable rooms that are not directly exposed to aircraft noise and do not face the source of the noise must have a minimum STC rating of 35 dB.
- C. Sliding glass doors in habitable rooms must not be allowed in walls that are directly exposed to aircraft noise. Sliding glass doors in walls that are not directly exposed must have an STC rating of at least 40 dB.

- D. Access doors from attached garage to the interior of a residence must have an STC rating of at least 30 dB.

1255.11: Roof/Ceiling Construction

- A. Roof rafters must have a minimum slope of 4:12 and must be covered on their top surface with minimum $\frac{1}{2}$ -inch solid sheathing and any roof covering allowed by this code.
- B. Attic insulation must be batt or blow-in glass fiber or mineral wool with a minimum R-30 rating applied between the ceiling joists.
- C. Attic ventilation must be:
1. Gable vents or vents that penetrate the roof surface that are fitted with transfer ducts at least 6 feet in length that are insulating flexible ducting or metal ducts containing internal 1-inch thick coated fiberglass sound absorbing duct liner. Each duct must have a lined 90-degree bend in the duct so that there is no direct line of sight from the exterior through the duct into the attic, or
 2. Noise control louver vents, or
 3. Eave vents that are located under the eave overhang.
 4. Ceilings must be finished with gypsum board or plaster that is at least $\frac{5}{8}$ -inch thick. Ceiling materials must be mounted on resilient channels.
 5. Skylights must penetrate the ceiling by means of a completely enclosed light well that extends from the roof opening to the ceiling opening. A secondary openable glazing panel must be mounted at the ceiling line or at any point that provides at least a 4-inch space between the skylight glazing and the secondary glazing and must be glazed with at least $\frac{3}{16}$ -inch plastic or laminated glass. The weather-side skylight must be any type that is permitted by the building code. The size of skylights must be no more than 20 percent of the roof area of the room.

1255.12: Ventilation

- A. A ventilation system must be provided that will provide at least the minimum air circulation and fresh air supply requirements of this code in each habitable room without opening any window, door or other opening to the exterior. All concealed ductwork must be insulated flexible glass fiber ducting that is at least 10 feet long between any two points of connection.
- B. Kitchen cooktop vent hoods must be the non-ducted recirculating type with no ducted connection to the exterior.

- 1255.13: Fireplaces: Each fireplace must be fitted with a damper at the top of the chimney that is operated from the firebox and must have glass doors across the front of the firebox.

1255.14: Wall And Ceiling Openings: Openings in the shell of the residence that degrade its ability to achieve an interior CNEL rating of 45 dB or less when all doors and windows are closed are prohibited unless access panels, pet doors, mail delivery drops, air-conditioning, or other openings are designed to maintain the 45 dB CNEL (or less) standard in the room to which they provide access.

Construction Methods In The 65 dB CNEL To 70 dB CNEL Noise Zone

1255.15: Exterior Walls: New walls that form the exterior portion of habitable rooms must be constructed as follows:

- A. Studs must be at least 4 inches in nominal depth.
- B. Exterior finish must be stucco, minimum $\frac{7}{8}$ -inch thickness, brick veneer, masonry, or any siding material allowed by this code. Wood or metal siding must be installed over $\frac{1}{2}$ -inch solid sheathing.
- C. Masonry walls with a surface weight of less than 40 pounds per square foot will require an interior studwall that is finished with at least $\frac{5}{8}$ -inch thick gypsum wallboard or plaster.
- D. Wall insulation must be at least R-11 glass fiber or mineral wool and must be installed continuously throughout the stud space.
- E. Exterior solid sheathing must be covered with overlapping asphalt felt.
- F. Interior wall finish must be at least $\frac{5}{8}$ -inch thick gypsum wallboard or plaster.

1255.16: Exterior Windows

- A. Openable Windows: All openable windows in the exterior walls of habitable rooms must have a laboratory sound transmission class rating of at least STC 35 dB and must have an air infiltration rate of no more than 0.5 cubic feet per minute when tested according to ASTM E-283.
- B. Fixed Windows: All fixed windows in the exterior walls of habitable rooms must be at least $\frac{1}{4}$ -inch thick and must be set in non-hardening glazing materials.
- C. The total area of glazing in rooms used for sleeping must not exceed 20% of the floor area.

1255.17: Exterior Doors

- A. Exterior hinged doors to habitable rooms that are directly exposed to aircraft noise and are facing the source of the noise must be a door and edge seal assembly that has a laboratory sound transmission class of at least STC 35 dB.
- B. Exterior hinged doors to habitable rooms that are not directly exposed to aircraft noise and do not face the source of the noise must have a minimum STC rating of 30 dB.
- C. Sliding glass doors in habitable rooms must have glass that is $\frac{1}{4}$ -inch thick.
- D. Access doors from a garage to a habitable room must have an STC rating of at least 30 dB.

1255.18: Roof/Ceiling Construction

- A. Roof rafters must have a minimum slope of 4:12 and must be covered on their top surface with minimum $\frac{1}{2}$ -inch solid sheathing and any roof covering allowed by this code.
- B. Attic insulation must be batt or blow-in glass fiber or mineral wool with a minimum R-30 rating applied between the ceiling joists.
- C. Attic ventilation must be:
 - 1. Gable vents or vents that penetrate the roof surface that are fitted with transfer ducts at least 6 feet in length that are insulating flexible ducting or metal ducts containing internal 1-inch thick coated fiberglass sound absorbing duct liner. Each duct must have a lined 90-degree bend in the duct so that there is no direct line of sight from the exterior through the duct into the attic, or
 - 2. Noise control louver vents, or
 - 3. Eave vents that are located under the eave overhang.
- D. Ceilings must be finished with gypsum board or plaster that is at least $\frac{5}{8}$ -inch thick.
- E. Skylights must penetrate the ceiling by means of a completely enclosed light well that extends from the roof opening to the ceiling opening. A secondary openable glazing panel must be mounted at the ceiling line and must be glazed with at least $\frac{3}{16}$ -inch plastic, tempered or laminated glass. The weather-side skylight must be any type that is permitted by the building code.

1255.19: Floors: The floor of the lowest habitable rooms must be concrete slab on grade or wood framed floors.

1255.20: Ventilation

- A. A ventilation system must be provided that will provide at least the minimum air circulation and fresh air supply requirements of this code in each habitable room without opening any window, door or other opening to the exterior. All concealed ductwork must be insulated flexible glass fiber ducting that is at least 10 feet long between any two points of connection.
- B. Kitchen cooktop vent hoods must be the non-ducted recirculating type with no ducted connection to the exterior.

1255.21: Fireplaces: Each fireplace must be fitted with a damper at the top of the chimney that is operated from the firebox and must have glass doors across the front of the firebox.

1255.22: Wall And Ceiling Openings: Openings in the shell of the residence that degrade its ability to achieve an interior CNEL rating of 45 dB or less when all doors and windows are closed are prohibited. Any access panels, pet doors, mail delivery drops, air-conditioning, or other openings must be designed to maintain the 45 dB CNEL or less standard in the room to which they provide access.

Section 6. ESMC Chapter 16 of Title 13 is repealed.

SECTION 7: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, et seq., "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, et seq., the "State CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment.

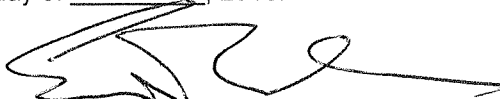
SECTION 8: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 9: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

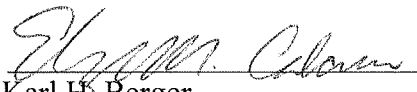
SECTION 10: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 11: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

PASSED AND ADOPTED this 16th day of November, 2010.


Eric Busch, Mayor

APPROVED AS TO FORM
MARK HENSLEY, CITY ATTORNEY


By:  Elizabeth M. Calcinus
for Karl H. Berger, Deputy City Attorney
Assistant City Attorney

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)


I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1449 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: **Busch, Fisher, Brann, Fuentes.**
NOES: **None**
ABSENT: **Jacobson**
ABSTAIN: **None**


Cindy Mortesen, City Clerk

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:

ATTEST: November 23, 2010


Cathy Domann, City Clerk, City of El Segundo

ORDINANCE NO. 1450

AN ORDINANCE ADOPTING THE 2010 EDITION OF THE CALIFORNIA ELECTRICAL CODE WITH AMENDMENTS.

The Council of the City of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

- A. Health and Safety Code § 17958 requires the City is required to adopt certain uniform codes that are set forth in Health and Safety Code § 17922 and published in the California Code of Regulations;
- B. Pursuant to Government Code § 50022.2, *et seq.*, the City may adopt other uniform codes by reference;
- C. It is in the public interest to adopt the 2010 Edition of the California Electrical Code ("CEC") with the changes set forth in this Ordinance;
- D. At least one copy of the CEC was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: Chapter 2 to Title 13 of the El Segundo Municipal Code ("ESMC") is amended in its entirety to read as follows:

CHAPTER 2

ELECTRICAL CODE

SECTION:

13-2-1: California Electrical Code Adopted.

13-2-1: ADOPTION OF CALIFORNIA ELECTRICAL CODE, 2010 EDITION. Pursuant to California Government Code § 50022.1 to 50022.8, the California Electrical Code, 2010 Edition, published at Title 24, Part 3, of the California Code of Regulations, including Annexes A thru G ("CEC") is adopted by reference, subject to the amendments, additions and deletions set forth below. One true copy of the CEC, is on file in the office of the Building Official and is available for public inspection as required by law.

SECTION 3: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION.

The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, *et seq.*, "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, *et seq.*, the "CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment. Consequently, it is categorically exempt in accordance with CEQA Guidelines §§ 15301 as a minor alteration of existing public or private structures involving no expansion of use; 15305 as a minor alteration in land use limitations which do not result in any changes in land use or density; and 15308 as an action taken by a regulatory agency as authorized by California law to assure maintenance or protection of the environment.

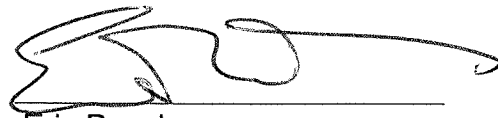
SECTION 4: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 5: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 6: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 7: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

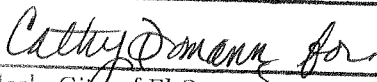
PASSED AND ADOPTED this 16th day of November, 2010.



Eric Busch,
Mayor

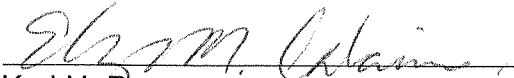

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:

ATTEST: November 23, 2010



City Clerk, City of El Segundo

APPROVED AS TO FORM
MARK HENSLEY, CITY ATTORNEY

By:  
Karl H. Berger Elizabeth M. Reliance
Assistant City Attorney Deputy City Attorney

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

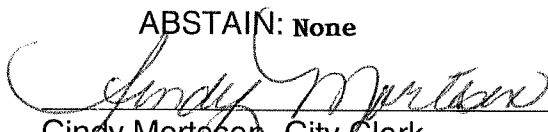
I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1450 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: Busch, Fisher, Brann, Fuentes

NOES: None

ABSENT: Jacobson

ABSTAIN: None


Cindy Mortesen, City Clerk

ORDINANCE NO. 1451

AN ORDINANCE ADOPTING THE 2010 EDITION OF THE CALIFORNIA PLUMBING CODE WITH AMENDMENTS.

The Council of the City of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

- A. Health and Safety Code § 17958 requires the City is required to adopt certain uniform codes that are set forth in Health and Safety Code § 17922 and published in the California Code of Regulations;
- B. Pursuant to Government Code § 50022.2, *et seq.*, the City may adopt other uniform codes by reference;
- C. It is in the public interest to adopt the 2010 Edition of the California Plumbing Code ("CPC") with the changes set forth in this Ordinance;
- D. Amendments have been made to Codes are hereby found to be either administrative or procedural in nature or concern themselves with subjects not covered in such Codes. The changes made include provisions making each of said Codes compatible with other Codes enforced by the City.
- E. At least one copy of the CPC was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: Chapter 5 to Title 13 of the El Segundo Municipal Code ("ESMC") is amended in its entirety to read as follows:

CHAPTER 5

PLUMBING CODE

SECTION:

- 13-5-1: California Plumbing Code Adopted.
- 13-5-2: Amendments to California Plumbing Code.

13-5-1: ADOPTION OF CALIFORNIA PLUMBING CODE, 2010 EDITION. Pursuant to California Government Code § 50022.1 to 50022.8, the California Plumbing Code, 2010 Edition,

published at Title 24, Part 4, of the California Code of Regulations, including Appendices A, B, D, I, and L ("CPC") is adopted by reference, subject to the amendments, additions and deletions set forth below. One true copy of the CPC, is on file in the office of the Building Official and is available for public inspection as required by law.

SECTION 3: ESMC Section 13-5-2 is amended to the California Plumbing Code including the adopted appendices is hereby amended as follows:

Section 103.3 of the CPC is hereby amended to read as follows:

CPC Section 103.3, Permit Issuance, is deleted in its entirety. The 2010 California Building Code, as incorporated into the El Segundo Municipal Code, will govern the administration of the CPC.

Section 103.4 of the CPC is hereby amended to read as follows:

CPC Section 103.4 Fees, is deleted in its entirety. The 2010 California Building Code, as incorporated into the El Segundo Municipal Code, will govern the administration of the CPC.

SECTION 4: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, *et seq.*, "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, *et seq.*, the "CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment. Consequently, it is categorically exempt in accordance with CEQA Guidelines §§ 15301 as a minor alteration of existing public or private structures involving no expansion of use; 15305 as a minor alteration in land use limitations which do not result in any changes in land use or density; and 15308 as an action taken by a regulatory agency as authorized by California law to assure maintenance or protection of the environment.

SECTION 5: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed

part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 6: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 7: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 8: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

PASSED AND ADOPTED this 16th day of November, 2010.



Eric Busch,
Mayor

APPROVED AS TO FORM
MARK HENSLEY, CITY ATTORNEY

By:



Karl H. Berger
Assistant City Attorney

Elizabeth M. Delcorno
1 Deputy City Attorney

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:

ATTEST:

November 23, 2010



City Clerk, City of El Segundo

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES)
CITY OF EL SEGUNDO) SS

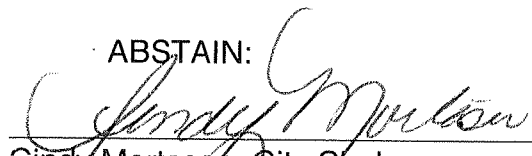
I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1451 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: **Busch, Fisher, Fuentes, Brann**

NOES: **None**

ABSENT: **Jacobson**

ABSTAIN: **None**



Cindy Mortesen, City Clerk

ORDINANCE NO. 1452

AN ORDINANCE ADOPTING THE 2010 EDITION OF THE CALIFORNIA MECHANICAL CODE WITH AMENDMENTS.

The Council of the City of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

- A. Health and Safety Code § 17958 requires the City is required to adopt certain uniform codes that are set forth in Health and Safety Code § 17922 and published in the California Code of Regulations;
- B. Pursuant to Government Code §§ 50022.2, *et seq.*, the City may adopt other uniform codes by reference;
- C. It is in the public interest to adopt the 2010 Edition of the California Mechanical Code ("CMC") with the changes set forth in this Ordinance;
- D. Amendments have been made to Codes are hereby found to be either administrative or procedural in nature or concern themselves with subjects not covered in such Codes. The changes made include provisions making each of said Codes compatible with other Codes enforced by the City.
- E. At least one copy of the CMC was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: Chapter 6 to Title 13 of the El Segundo Municipal Code ("ESMC") is amended in its entirety to read as follows:

CHAPTER 6

MECHANICAL CODE

SECTION:

- 13-6-1: California Mechanical Code Adopted.
- 13-6-2: Amendments to California Mechanical Code.

13-6-1: ADOPTION OF CALIFORNIA MECHANICAL CODE, 2010 EDITION. Pursuant to California Government Code §§ 50022.1 to 50022.8, the California Mechanical Code, 2010 Edition,

published at Title 24, Part 4, of the California Code of Regulations, including Appendices A through D ("CMC") is adopted by reference, subject to the amendments, additions and deletions set forth below. One true copy of the CMC, is on file in the office of the Building Official and is available for public inspection as required by law.

SECTION 3: ESMC Section 13-6-2 is amended to the California Mechanical Code including the adopted appendices is hereby amended as follows:

Section 110.0 of the CMC is hereby amended to read as follows:

CMC Section 110.0, Board of Appeals, is deleted in its entirety. The 2010 California Building Code, as incorporated into the El Segundo Municipal Code, will govern the administration of the CMC.

Section 114.0 of the CMC is hereby amended to read as follows:

CMC Section 114.0 Permits, is deleted in its entirety. The 2010 California Building Code, as incorporated into the El Segundo Municipal Code, will govern the administration of the CMC.

Section 115.0 of the CMC is hereby amended to read as follows:

CMC Section 115.0 Fees, is deleted in its entirety. The 2010 California Building Code, as incorporated into the El Segundo Municipal Code, will govern the administration of the CMC.

SECTION 4: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION.

The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, *et seq.*, "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, *et seq.*, the "CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment. Consequently, it is categorically exempt in accordance with CEQA Guidelines §§ 15301 as a minor alteration of existing public or private structures involving no expansion of use; 15305 as a minor alteration in land use limitations which do not result in any changes in land use or density; and 15308 as an action taken by a regulatory agency as authorized by California law to assure maintenance or protection of

the environment.

SECTION 5: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 6: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 7: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 8: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

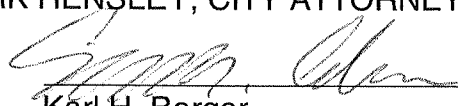
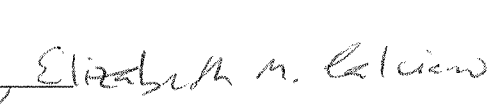
PASSED AND ADOPTED this 16th day of November, 2010.



Eric Busch,
Mayor

APPROVED AS TO FORM
MARK HENSLEY, CITY ATTORNEY

By:

 
Karl H. Berger, Elizabeth M. Calvion
Assistant City Attorney, Deputy City Attorney

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:

ATTEST: November 23, 2010


Cathy Doman
City Clerk, City of El Segundo

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

AYES:	Busch, Fisher, Brann, Fuentes
NOES:	None
ABSENT:	Jacobson
ABSTAIN:	None

~~Cindy Mortesen, City Clerk~~

ORDINANCE No. 1453

AN ORDINANCE ADOPTING BY REFERENCE THE 2010 EDITION OF THE CALIFORNIA FIRE CODE, CHAPTERS 1, 3, and 4, Appendix J OF THE INTERNATIONAL FIRE CODE, 2009 EDITION, AND AMENDING THESE CODES THROUGH EXPRESS FINDINGS OF LOCAL NECESSITY.

The Council of the city of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds that certain local climatic, geological, or topographical conditions exist as follows:

- A. Climatic - The City experiences periods of extremely high temperatures accompanied by low humidity and high winds each year. These conditions could create an environment in which the Fire Department may be unable to control fires occurring in vegetation as well as structures not having built in fire protection.
- B. Geological - The City is located in a seismically active area. A significant earthquake could render the Fire Department incapable of providing adequate fire protection. In that instance, built-in fire protection would be relied upon for controlling most structural fires.
- C. After due consideration, the City Council finds and determines that due to these local climatic, geological, or topographical conditions that amendments, additions, and deletions to the California Fire Code, 2007 Edition, are reasonably necessary to provide sufficient and effective levels of fire safety for the protection of life, health and property. Specifically, these amendments are made as follows:
 - 1. CFC § 503.1.1, 5.3.2.1, 503.2.1.1, 503.2.1.2, 503.2.4, 503.4, 505.1, 505.1.1 – Provides a means of ensuring that fire department access to buildings and fire hydrants is provided uniformly in the City during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
 - 2. CFC § 507.5.1. – Provides a means of ensuring fire hydrants in the City are located a maximum distance to buildings and structures to allow for efficient firefighting operations during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
 - 3. CFC § 510.1. – Provides a means of ensuring that safe and efficient firefighting operations are conducted in buildings with limited radio reception during periods of low humidity and high

winds, potential seismic activity, or in areas of restricted access present in the City.

4. CFC § 901.4.1.1 – 910.1. Provides a means of ensuring that fire protection systems are installed and maintained in a manner that will provide adequate protection during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
5. CFC § 915.1 – 915.8.2.6. Requires the installation of fire protection and life safety equipment in new mid-rise buildings/structures that increase the fire and life safety of the structures/buildings in order to provide adequate fire protection during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
6. CFC § 1030.9. Requires fire escapes to be kept clear, maintained and an annual inspection by a certified individual to ensure the fire escapes are operable due to potential seismic activity.
7. CFC § 3301.2 and 3310 Prohibits the general use of fireworks, including “Safe and Sane” fireworks and authorizes the fire code official to confiscate fireworks in order to reduce the danger from fire during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
8. CFC Appendix B § B105.2. Reduces the available fire flow reduction to 50 percent to increase site available fire flow to provide adequate fire protection and life safety during periods of low humidity and high winds, potential seismic activity, or in areas of restricted access present in the City.
9. CFC § 105.7.11.1, 304.1.1.1, 504.4 and Appendix M requires roof top obstructions (solar voltaic systems, roof top gardens, and landscaped roofs) that limit firefighting operations to have minimum clearances and identification to provide adequate firefighting access during periods of low humidity and high winds, potential seismic activity or I areas of restricted access present in the City.

SECTION 2: Chapter 10 to Title 13 of the El Segundo Municipal Code (“ESMC”) is amended in its entirety to read as follows:

“CHAPTER 10
13-10-2: FIRE CODE

A. SECTIONS:

13-10-1: ADOPTION OF CODES.

13-10-2: AMENDMENTS, ADDITIONS, AND DELETIONS.

13-10-3: ADDING APPENDIX M TO THE CFC.

13-10-4: GEOGRAPHICAL LIMITS.

13-10-1: ADOPTION OF CODES.

Pursuant to California Government Code §§ 50022.1 to 50022.8, the City adopts and incorporates by reference the California Fire Code, 2010 Edition ("CFC"), including Appendixes A, B, and C published drafted and published by the International Code Council, 500 New Jersey Avenue NW, 6th Floor, Washington DC, 20001-2070 and the California Building Standards Commission, 2525, Natoma Park Drive, Ste 130, Sacramento, California 95833. The City also adopts and incorporates by reference Chapters 1, 3, 4, and Appendix J of the International Fire Code, 2009 Edition, published by the International Code Council, not included in the California Building Standards Code, as modified and amended by this chapter. Should the changes set forth below conflict with the provisions of any other locally adopted code, these changes will prevail. The CFC and the IFC will apply to all occupancies within the City's jurisdiction. One (1) true copy of each code is on file with the City Clerk and is available for public inspection as required by law.

13-10-2: AMENDMENTS, ADDITIONS, AND DELETIONS.

After due consideration, the City Council has found that as a result of existing local climatic, geological, or topographical conditions that amendments, additions, and deletions to the CFC are reasonably necessary to provide sufficient and effective levels of fire safety for the protection of life, health and property. Therefore, the CFC is amended, added to, or deleted from, as set forth below:

§ 102.8 Subjects Not Specifically Regulated by this Code. Where no applicable standards or requirements are set forth in this code, or contained within other laws, codes, regulations or ordinances, the fire code official may interpret, administer and enforce this Code by reference to the standards of the National Fire Protection Association and such other nationally recognized fire safety standards as are set out in Chapter 45. Any decision of the fire code official relating to the interpretation of this Code may be appealed to the Board of Appeals.

§ 104.10 Investigations. The Fire Department is authorized to promptly investigate the cause, origin and circumstances of each and every fire, explosion, unauthorized release of hazardous materials, or any other hazardous condition within the City. If it appears to the bureau of investigation that such fire is suspicious in origin, it is authorized to take immediate charge of all physical evidence relating to the cause of fire and to pursue investigation to its conclusion.

§ 104.10.1 Assistance from other agencies. The Police Department and other public agencies are authorized to assist the Fire Department in its investigations when requested to do so.

§ 104.10.2 Technical assistance. When there is a fire, explosion, hazardous materials incident or other potential life or serious property threatening situation, the fire code official can request the owner to or operator to hire a private fire protection or hazardous materials investigator, acceptable to the fire code official and at the expense of the owner or operator, to provide a full report of the incident, including, without limitation, such matters as origin, cause, circumstances or proposed solution to the problem.

§ 104.11.4 Financial Responsibility. Any person who personally, or through another, willfully, negligently, or in violation of law, sets a fire, allows a fire to be set, or allows a fire kindled or attended by him/her to escape from his/her control, allows any hazardous material to be handled, stored, disposed of, or transported in a manner not in accordance with this Code, State law or nationally recognized Standards, allows any hazardous material to escape from his/her control, allows continuation of a violation of this Code is liable for the expense of fighting the fire or for the expenses incurred during a hazardous materials incident, and such expense will be a charge against that person.

§ 105.2 Application for Permit. Applications for permits will be made to the fire prevention office in such form and detail as prescribed by the fire code official. Applications for permits must be accompanied by such plans as required by the fire code official. Any applicable permit fees must be paid at the time of application for the permit.

§ 105.6.48 Battery systems. To install or operate stationary storage battery systems having a liquid capacity of more than 50 gallons (189 L) for flooded lead acid, nickel cadmium (NiCad) and valve-regulated lead acid (VRLA), or 1,000 pounds (454 kg) for lithium-ion, used for facility standby power, emergency power or uninterruptible power supplies. See Section 608.

§ 105.6.49 Woodworking. To operate a business which conducts woodworking, or operates as a cabinet shop or other similar purposes.

§ 105.7.11.1 Roof obstructions. A construction permit is required for installation of roof solar voltaic systems, roof gardens or a landscaped roof when constructed on a building that covers more than 50% or 10,000 square feet of the total roof surface area, whichever is less

Exception:

1. Buildings that are four or more stories in height and protected with an approved automatic fire extinguishing system throughout.
2. Non-habitable structures include, but are not limited to, shade structures, private carports, solar trellises, etc.

§ 106.2.1 Inspection requests. It is the duty of the holder of the permit or their duly authorized agent to notify the fire code official when work is ready for inspection. It shall be the duty of the permit holder to provide access to and means for inspection of such work that are required by this code. Every request for inspection must be filed not less than two working days before such inspection is desired. Such request may be in writing or by telephone.

§ 108.4 Filing fee and application. The City will assess a fee in an amount set by resolution at the time that an appellant files an appeal of any order, decisions, or determination made by the fire code official relative to the application and interpretation of this Code. The fee is refundable should the appellant prevail in a decision by the Board. The appeal must be taken by filing a written notice of appeal, in letterform, to the Board of Appeals. The Board's decision constitutes the City's final decision.

§ 202 GENERAL DEFINITIONS are amended to add and/or modify the following definitions to read as follows:

“Administrator” means the City Manager, or designee, of the city of El Segundo.

“Building Access” means an exterior door opening conforming to all of the following:

1. Suitable and available for fire department use, opening onto or adjacent to a public way or a fire department access road as described in Section 902.
2. Located not more than 2 feet (609.6 mm) above adjacent ground level.
3. Leading to a space, room or area having foot traffic communication capabilities with the remainder of the building.
4. Designed to permit access with the use of keys available in an approved key lock box.

“Fire Code Official” is the Fire Chief or a duly authorized representative.

“Low-Rise Building” is any building that is less than four stories in height from the lowest level of fire department access. Measurement will be from the topside of the highest floor level that can be occupied to the lowest floor level of building access, as defined in Section 202.

“Mid-Rise Building” is any building having space used for human occupancy four complete stories or more in height while being 75 feet (22,860 mm) or less in height and not defined as a high-rise building by Section 202. Measurement will

be from the topside of the highest floor level that can be occupied to the lowest floor level of building access, as defined in Section 202.

§ 304.1.1.1 Waste material near ground mounted photovoltaic array.

Accumulation of waste material shall not be permitted underneath nor within 10 feet from a ground mounted photovoltaic array.

§ 405.2 Table 405.2 Footnote 'a'

- a. The frequency in all school levels are allowed to be modified in accordance with Section 408.3.2. Secondary level schools need only conduct evacuation drills twice each school year.

§ 408.1 General. is deleted

§ 408.2 Group A occupancies. is deleted

§ 408.3 Group E occupancies and Group R-2 college and university buildings. is deleted

§ 408.5 I occupancies. is deleted

§ 408.6 Group I-2 occupancies. is deleted

§ 408.7 Group I-3 occupancies. is deleted

§ 408.8 Group R-1 occupancies. is deleted

§ 408.9 Group R-2 occupancies. is deleted

§ 408.10 Group R-4 occupancies. is deleted

§ 408.11 Covered mall buildings. is deleted

§ 503.1.1 Buildings and facilities. Approved fire apparatus access roads must be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road must comply with the requirements of this section and shall extend to within 150 feet (45,720 mm) of all portions of the facility and all portions of the exterior walls of the of the first story of the building as measured by an approved route around the exterior of the building or facility. The fire code official has the authority to designate fire apparatus access roads on private property.

Exception: The fire code official is authorized to increase to dimension of 150 feet (45,720 mm) where:

1. The building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1, 903.1.2 or 903.3.1.3.
2. Fire apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.
3. There are not more than two Group R-3 or Group U occupancies.

§ 503.2.1 Dimensions. Fire apparatus access roads must have an unobstructed width of not less than 20 feet (6096 mm) exclusive of shoulders, except for approved security gates in accordance with Section 503.6, and an unobstructed vertical clearance of not less than 15 feet (4572 mm).

Exception:

1. When serving only one Group R, Division 3 or Group U Occupancy the unobstructed width of the access road may be 12 feet (3658 mm).

§ 503.2.1.1 Access roads with vehicle parking. No access roads can be less than 32 feet (9754 mm) in width if the vehicle parking is permitted on one side of the access road and not less than 40 feet (12,192 mm) if vehicle parking is permitted on both sides of the access road. To permit the free passage of vehicles, access roads designated for vehicle parking on only one side must have signs or markings prohibiting the parking of vehicles on the traffic flow side of the roadway.

§ 503.2.1.2 Road divider. An access road divider into separate adjacent one-way traffic lanes by a curbed divider or similar obstacle must not be less than 15 feet (4572 mm) in unobstructed width on each side of the divider.

§ 503.2.4 Turning radius. The inside turning radius of a fire apparatus access road must be a minimum of 60 feet, outside and 40 feet, inside.

§ 503.4 Obstruction of fire apparatus access roads. Fire apparatus access roads cannot be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Section 503.2.1 must be maintained at all times. Speed bumps and speed humps must be approved before installation.

§ 504.4 Roof top access and safety. Roof top solar photovoltaic systems, roof gardens and landscaped roofs shall be in accordance with Appendix M.

§ 505.1 Address numbers. Approved address numbers and letters must be placed on all new and existing buildings and units in such a location as to be plainly visible and legible from the street or road fronting such buildings and units. Numbers and letters must be at least four (4) inches in height for residential, six (6) inches in height for commercial, and twelve (12) inches in height for industrial

buildings and units and may not be located on doors or other areas that can be obstructed from view. The numbers and letters will be in a color that contrasts with their background and must be in the City's approved numbering sequence. Commercial and industrial buildings and units that are served by an alley must also have approved address numbers and letters posted in a visible location near the primary door to the alley.

§ 505.1.1 Directory. For complexes and large buildings, a directory or premises map with approved addressing must be installed and maintained at a location and in format as approved by the fire code official.

§ 507.5.1 Additional On-site fire hydrants. When any portion of the facility or building protected is in excess of 150 feet (45 720 mm) from a water supply on a public street, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow must be provided when required by the fire code official. See Appendix C.

§ 510.1 Emergency responder radio coverage in buildings. All buildings, including existing buildings, shall have approved radio coverage for emergency responders within the building based upon the existing coverage levels of the public safety communications systems of the jurisdiction at the exterior of the building. This section shall not require improvement of the existing public safety communication system.

Exceptions:

1. Where approved by the building official and the fire code official, a wired communication system in accordance with section 907.2.13.2 shall be permitted to be installed or maintained in lieu of an approved radio coverage system.
2. Where it is determined by the fire code official that the radio coverage system is not needed.

§ 805 Upholstered Furniture and Mattress In New and Existing Buildings. is deleted

§ 808 Furnishings Other Than Upholstered Furniture and Mattresses or Decorative Materials in New and Existing Buildings. is deleted

§ 901.4.5 Partial fire sprinkler systems. Where in this Code or the Building Code a partial fire sprinkler system is required, the fire sprinkler system must be installed, modified or extended to protect the entire building or structure.

§ 901.10 Problematic systems. In the event of a failure of a fire protection system or 2 or more alarms in a week where the fire code official finds no evidence of a

situation requiring a response, the fire code official is authorized to require the building owner or occupant to provide a fire watch until the system is repaired. Fire watch personnel must be provided with at least one approved means for notification of the Fire Department and their only duty is to perform constant patrols of the protected premises and keep watch for fires.

§ 903.2.11.3 Building 4 stories or more in height. An automatic sprinkler system must be installed throughout all buildings having usable floor area four stories or more above grade, or buildings attached thereto.

§ 903.2.19 Structures in the Smoky Hollow Specific Plan Area. An automatic sprinkler system must be provided throughout every facility or building hereafter constructed within the Smoky Hollow Specific Plan Area.

§ 903.3.1.2.2 Protection of attached garages. Residential occupancies protected by an automatic sprinkler system in accordance with NFPA 13R must have automatic sprinklers installed in attached garages and in other areas as required by the fire code official.

§ 903.3.1.3.1 Protection of attached garages. Residential occupancies protected by an automatic sprinkler system in accordance with NFPA 13D must have automatic sprinklers installed in attached garages and in other areas as required by the fire code official.

§ 905.5.3 Intentionally blank.

§ 910.1 General. Where required by this Code or otherwise installed, smoke and heat vents or mechanical smoke exhaust systems and draft curtains must conform to the requirements of this section.

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an approved automatic sprinkler system.
2. Where areas of buildings are equipped with early suppression fast-response (ESFR) sprinklers, smoke and heat venting must be provided by mechanical smoke exhaust systems in accordance with Section 910.4 within these areas.

SECTION 915 MID-RISE BUILDINGS

SECTION 915.1 General

§ 915.1.1 Scope. In addition to other applicable provisions of this code, other laws and regulations, and any policies of the fire code official, the provisions of this article

apply to every mid-rise building, of any type construction, newly constructed after the adoption of this Code, or which undergoes a complete renovation that requires the complete vacancy of the building.

Exceptions: The following structures, while defined as mid-rise buildings, will not be subject to the provisions of this article:

1. Buildings used exclusively as open parking garage;
2. Buildings where all floors above the third floor (9,144 mm) level are used exclusively as open parking garage;
3. Buildings such as power plants, lookout towers, steeples, grain houses, and similar structures with non-continuous human occupancy, when so determined by the fire code official;
4. Buildings used exclusively for jails, prisons and hospitals.

§ 915.1.2 Definitions. For definitions of MID-RISE BUILDING and BUILDING ACCESS, see Section 202.

§ 915.2 Building Access.

§ 915.2.1 Building Access. Building access must be provided and approved by the fire code official.

§ 915.3 Fire and Life Safety Requirements.

§ 915.3.1 Automatic Fire Sprinklers. Every mid-rise building must be protected throughout by an automatic fire sprinkler system that is designed and installed in conformance with NFPA 13. A shut-off valves and a water flow alarm device must be provided for each floor.

§ 915.3.2 Standpipes. Every mid-rise building must be provided with a class I standpipe system in each required stairway. The standpipe system must be interconnected with the fire sprinkler system. The system must consist of 2½ inch hose valves provided for each floor level above or below grade. Two hose outlets must also be located on the roof, outside of each stair shaft enclosure that penetrates the roof. Hose connections must be located in the exit vestibule, unless otherwise approved by the fire code official.

§ 915.3.3 Smoke Detection. Smoke detectors must be provided in accordance with this section. Smoke detectors must be connected to an automatic fire alarm system installed in accordance with NFPA 72. The actuation of any detector required by this section will operate the emergency voice alarm signaling system and will place into

operation all equipment necessary to prevent the circulation of smoke through air return and exhaust ductwork.

§ 915.3.3.1 Location. Smoke detectors must be located as follows:

1. In every elevator machinery room and in all elevator lobbies. Elevator lobby detectors must be connected to an alarm verification zone or be listed as a releasing device.
2. In the main return-air and exhaust-air plenum of each air-conditioning system. Such device must be located in a serviceable area downstream of the last duct inlet.
3. At each connection to a vertical duct or riser serving two or more stories from a return-air duct or plenum of an air conditioning system. In Group R-1 and R-2 Occupancies, an approved smoke detector may be used in each return-air riser carrying not more than 5,000 cubic feet per minute and serving not more than 10 air inlet openings.
4. For Group R-1 and R-2 Occupancies, in all corridors serving as a means of egress for an occupant load for 10 or more.

§ 915.3.4 Smoke Control. A passive or active smoke control system must be provided for all mid-rise buildings whenever a complete floor is in excess of 55 feet (16.764 mm) from the lowest point of Fire Department access. Such system must be mechanical and must be designed, installed and tested to be in compliance with Section 909.

§ 915.3.5 Fire Alarm System. An approved and listed, automatic and manual, fully addressable and electronically supervised fire alarm system must be provided in conformance with this code and any policies of the Fire Prevention Division.

§ 915.3.6 Emergency voice alarm signaling system. The operation of any automatic or manual fire alarm initiating device must automatically sound an alert tone followed by a pre-recorded voice instruction giving appropriate information and direction on a general or selective basis to entire building, occupied and normally non-occupied areas.

§ 915.3.6.1 Pre-recorded instructions. The content of the voice alarm instruction must be approved by the El Segundo Fire Department.

§ 915.3.6.2 Manual override. A manual override for emergency voice communication must be provided for all paging zones.

§ 915.4 Central Control Station.

§ 915.4.1 General. A central control station room for fire department-operations must be provided. The location and accessibility of the central control station room must be approved by the fire department. The room must be separated from the remainder of the building by not less than one-hour, fire resistive occupancy separation. The room must be a minimum of 96 square feet with a minimum dimension of 8 feet. It must contain the following as a minimum:

1. The voice alarm and public address panels.
2. The fire alarm annunciator panel.
3. Elevator annunciator panel when the building exceeds 55 feet in height
4. Status indicators and controls of air handling systems.
5. Controls for unlocking stairwell doors.
6. Annunciator panels for emergency and stand-by power status.
7. Annunciator panels for fire pump status.
8. Complete building plans set.
9. Work table.
10. Elevator control switches for switching of emergency power.

§ 915.4.2 Annunciation identification. Control panels in the central control station must be permanently identified as to function. Water flow, automatic fire detection and manually activated fire alarms, supervisory and trouble signals must be monitored by an approved, UL listed Central Monitoring Station or Proprietary Monitoring Station and annunciated in the central control station by means of an audible and visual indicator. For the purposes of annunciation, zoning must be in accordance with the following:

1. When the system serves more than one building, each building must be considered separately.
2. Each floor must be considered a separate zone.
3. When one or more risers serve the same floor, each riser must be considered a separate zone.

§ 915.5 Elevators.

§ 915.5.1 Standards. Elevators and elevator lobbies be provided and must comply with the California Building Code and the following:

§ 915.5.2 General. At least one elevator cab must be assigned for Fire Department use, which must serve all floors of the building. All provisions hereinafter are in reference to said elevator cab(s).

§ 915.5.2.1 Size. The size of the elevator cab must have dimensions as specified in Section 915.5.2.1.1.

§ 915.5.2.1.1 Ambulance Stretcher. The elevator cab must be provided with adequate dimensions to accommodate an ambulance type stretcher in accordance with the provisions of Section 3002.4a.1 of California Building Code.

§ 915.6 Standby Power.

§ 915.6.1 General. An on-site standby power system conforming to the Electrical Code must be provided. In the event of failure of the normal power source, the standby power system must provide an alternate source of electrical power to serve at least the designated loads as set forth in Section 915.6.2 at full power. The system may consist of an on-site generator or a system of batteries, or both. The installation must be in accordance with this code, nationally recognized standards, and any policies of the fire code official.

§ 915.6.2 Loads. The power load requirements for sizing the standby power system must include, without limitation to the following:

1. Exit signs and exit path illumination;
2. Fire alarm system;
3. Elevator(s) assigned for fire department use;
4. Electrically driven fire pumps (if provided);
5. Smoke control systems;
6. Stairwell pressurization;
7. Lighting circuits supplying all elevator cabs, elevator lobbies, generator room, fire pump room, and other areas designated by the fire code official.

§ 915.6.3 Fuel Supplies. On-site fuel supplies for prime movers of a standby power generator must be sufficient for at least 48 hours at the generator's listed full load. Where fuel supplies require automatic transfer into a primary tank from a secondary fuel storage tank, the fuel transfer system must be provided with redundant fuel pumps to insure reliability. The fuel supply tank provided must be capable of storing at least 200% of the calculated amount of fuel needed.

§ 915.7 Emergency Electrical System

§ 915.7.1 General. Electrical systems and equipment specified in Section 915.6 are classed as emergency systems and must be installed in accordance with this code, NFPA 110, NFPA 111 and policies of the fire code official. Such systems must operate within 10 seconds of failure to normal power supply. Such emergency power supply may be separate from the standby power required for fire pumps and elevators assigned for fire department use.

§ 915.7.2 Emergency Systems. The following are classed as emergency systems:

1. Exit signs and means of egress illumination
2. Fire alarm system
3. Fire detection system
4. Sprinkler alarm system
5. Elevator cab lighting
6. Smoke control systems.

§ 915.8 Means of Egress

§ 915.8.1 General. Means of egress must comply with the provisions of Section 915.8.

§ 915.8.1 Stairway enclosures. All stairways used for exiting must be protected by an exit enclosure designed in accordance with the California Building Code, Section 1020.1 and this Section.

§ 915.8.2.1 Construction. Construction of stairway enclosures must in accordance with the California Building Code, Section 1005.3.3.2.

§ 915.8.2.2 Extent of Enclosure. Stairway enclosures must be continuous and must fully enclose all portions of the stairway. Exit enclosure must exit directly to the exterior of the building or include an exit passageway on the ground floor, leading to the exterior of the building. Each exit enclosure must extend completely through the roof and be provided with a door that leads onto the roof.

§ 915.8.2.3 Openings and Penetrations. Openings and Penetrations must be as specified in the California Building Code, Section 1020.1.1.

§ 915.8.2.4 Pressurized Enclosures. A pressurized stairway enclosure must be provided for all mid-rise buildings whenever a complete floor is in excess of 55 feet (16.764 mm) from the lowest point of Fire Department access. The pressurized stairway must be designed and pressurized as specified in the California Building Code, Section 909.20.

§ 915.8.2.4.1 Vestibules. Pressurized stairway enclosures, serving Mid-Rise buildings must be provided with a pressurized entrance vestibule on each floor that complies with the California Building Code, Section 909.20.

§ 915.8.2.4.1.1 Vestibule Size. Vestibule size must be not less than 44 inches in width and not less than 72 inches in the direction of travel.

§ **915.8.2.4.1.2 Vestibule Construction.** Vestibules must have walls, ceilings and floors of not less than two-hour fire resistive construction.

§ **915.8.2.4.1.3 Vestibule Doors.** Vestibule doors must be in accordance with the California Building Code, Section 909.20.

§ **915.8.2.4.1.4 Pressure Differences.** The minimum pressure difference within a vestibule must be in accordance with the California Building Code, Section 909.20.

§ **915.8.2.4.1.5 Standpipes.** Fire Department standpipe connections and valves serving the floor must be within the vestibule and located in a manner so as not to obstruct egress when hose lines are connected and charged.

§ **915.8.2.5 Locking of Stairway doors.** All stairway doors that are locked to prohibit access from the stairway side must have the capability of being unlocked simultaneously, without unlatching, upon a signal from the fire control room. Upon failure of normal electrical service, or activation of any fire alarm, the locking mechanism must automatically retract to the unlocked position. Hardware for locking of stairway doors must be State Fire Marshal listed and approved by the fire code official by permit before installation. Stairway doors located between the vestibules and stairway shaft must not be locked.

§ **915.8.2.6 Communications.** A telephone or other two-way communications system connected to an approved emergency service which operates continuously must be provided at not less than every third floor in each required exit stairway vestibule.

§ **1030.9 Fire escape maintenance.** Fire escapes must be kept clear and unobstructed at all times, must be maintained in good working order at all times and must receive an annual inspection by a Los Angeles Fire Department Regulation 4 certified individual. The inspection records must remain on site for Fire Department review.

§ **1404.8 Fire retardant plastic sheeting and tarpaulins.** Fire retardant tarpaulins and sheeting must be used to barricade construction areas from occupied building spaces and to provide floor or wall protection in occupied buildings.

§ **2201.7 Class IIIB fuels.** Where in this Chapter there is a requirement or restriction for Class IIIA fuels, the same requirement or restriction applies to Class IIIB fuels.

§ **2306.2 Table 2306.2, Footnote 'j' is amended to read as follows:**

- j. Smoke and heat removal must be accomplished by mechanical ventilation in accordance with Section 910.4 when storage areas are protected by early suppression fast response (ESFR) sprinkler systems installed in accordance with NFPA 13.

§ **3301.2 Fireworks.** The manufacturing, possession, storage sale, use and handling of fireworks, including without limitation, “Safe and Sane” fireworks, is prohibited

Exceptions:

1. Storage of fireworks in accordance with the requirements for low order explosives in Title 19, California Code of Regulations, Chapter 10.
2. Storage of fireworks, 1.4G in accordance with the Building Code.
3. Use and handling of fireworks for professional display in accordance with Title 19, California Code of Regulations, Chapter 6.

§ **3310 Seizure of Fireworks.** The fire code official has the authority to seize, take and remove fireworks stored, sold, offered for sale, used or handled in violation of the provisions of Title 19, California Code of Regulations, Chapter 6 and California Health and Safety Code, Chapter 9.

Appendix B § **B105.2 Buildings other than one- and two-family dwellings.** The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings is specified in Table B105.1

Exception: A reduction in required fire-flow up to 50 percent, as approved, is allowed when the building is protected with an approved automatic sprinkler system installed in accordance with Section 903.1.1 or 903.1.2. The resulting fire-flow must not be less than 1,500 gallons per minute (5678 L/min) for the prescribed duration as specified in Table B105.1

13-10-3: A new Appendix M Roof Obstructions is added to the CFC to read as follows:

**APPENDIX M
ROOF OBSTRUCTIONS**

SECTION M101

SCOPE

§ **M101.1 Scope:** This appendix shall apply to the design, construction, and installation of all solar photovoltaic systems, roof gardens and landscaped roofs when located on the roof of a building.

Exception:

1. Buildings that are four or more stories in height and protected with an approved automatic fire extinguishing system throughout.
2. Non-habitable structures include, but are not limited to, shade structures, private carports, solar trellises, etc.

§ M101.2 Permits. The fire code official shall review and approve the installation of roof solar photovoltaic systems, roof gardens, landscaped roofs on building that obstruct more than 50% or 10,000 square feet of the total roof surface area prior to the building code official issuing a permit for the installation for such roof obstructions. See section 105.7 for required construction permits.

§ M101.3 Required construction document information. All roof top installations submitted for approval shall include the following:

1. Site plan to scale depicting the following:
 - a. Dimensions of the building
 - b. Location of all structures on site.
 - c. Street address of building.
 - d. Access from street to building.
 - e. Location of roof top solar arrays, gardens, or landscaped areas.
 - f. Location of disconnects.
 - g. Location of signage.
 - h. Location of required access paths.
 - i. Northern reference
2. Roof and Elevation plan showing the following:
 - a. Array or landscape placement.
 - b. Roof ridge lines.
 - c. Eave lines.
 - d. Equipment on roof.
 - e. Vents, skylights, roof hatches, etc.
3. Location and wording of all markings, labels and warning signs.
4. Building photographs that may be useful in the evaluation of the garden, landscaping, or array placement.

SECTION M102

DEFINITIONS

§ M102.1 Definitions. For the purpose of this appendix, certain terms are defined as follows:

ACCESS PATHWAY. A required walking pathway that is designed to provide emergency access to firefighters.

ARRAY. An uninterrupted section of solar photovoltaic panels or modules or a group of interconnected sub-arrays.

GRID. The electrical system that is on the service side of the electric meter. designation of ridge, hip, and valley does not apply to roofs with 2-in-12 or less pitch. All roof dimensions are measured to centerlines.

INVERTER. A device used to convert direct current (DC) electricity from the solar system to alternating current (AC) electricity for use in the building's electrical system or the grid.

LANDSCAPED ROOF. Vegetative landscaping located on the roof of a building that utilizes growing media and structures or containers to support the growth of vegetation.

ROOF ACCESS POINT. An area that does not require ladders to be placed over building openings (i.e., windows, vents, or doors), and that are located at structurally strong points of building construction and in locations where ladders will not be obstructed by tree limbs, wires, signs or other overhead obstructions.

ROOF GARDEN. A garden located on the roof of a building that utilizes growing media and structures or containers to support the growth of vegetation.

SOLAR PHOTOVOLTAIC SYSTEM. A system of component parts that receives sunlight and converts it into electricity.

SUB-ARRAY. Uninterrupted sections of solar photovoltaic panels interconnected into an array.

TRAVEL DISTANCE. The walking distance between two points.

VENTING CUT OUT. Section(s) in an array that are designed to accommodate emergency ventilating procedures.

SECTION M103

ROOF SOLAR PHOTOVOLTAIC SYSTEMS

§ **M103.1. Solar photovoltaic systems.** The requirements of section K103 applies to all solar photovoltaic systems installed on the roof of buildings regardless of system size or if used for residential and commercial purposes. Roof solar photovoltaic systems shall be designed, constructed and installed in accordance with sections M103.2 through M103.5.3.

§ **M103.2 Marking.** Photovoltaic systems shall be marked. Marking is needed to provide emergency responders with appropriate warning and guidance with respect to isolating the solar electric system. This can facilitate identifying energized electrical lines that connect the solar panels to the inverter, as these should not be

cut when venting for smoke removal. Materials used for marking shall be weather resistant. UL 969 shall be used as a standard for weather rating (UL listing of markings is not required).

§ M103.2.1 Building's electrical system main service disconnect marking. The buildings main electrical service disconnect shall be marked.

§ M103.2.1.1 Single and two dwelling unit residential buildings. The marking shall be placed within the main service disconnect.

Exception: If the main service disconnect is operable with the service panel closed, then the marking shall be placed on the outside cover.

§ M103.2.1.2 Commercial and industrial buildings. The marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the lever is operated.

§ M103.2.1.3 Marking content and format. Marking content and format shall be as follows.

1. Marking content: "CAUTION: SOLAR ELECTRIC SYSTEM CONNECTED"
2. Red background
3. White lettering
4. Minimum 3/8 inch letter height
5. All capital letters
6. Arial or similar font, non-bold
7. Reflective weather resistant material suitable for the environment (durable adhesive materials must meet this requirement)

§ M103.2.2 Photovoltaic circuits marking. Photovoltaic circuit marking is required on all interior and exterior photovoltaic DC circuit conduit, raceways, enclosures, cable assemblies and junction boxes to alert firefighters to avoid cutting them. Marking shall be placed every 10 feet, at turns, and above and/or below penetrations, and at all photovoltaic circuit combiner and junction boxes.

§ M103.2.2.1 Marking content and format. Marking content and format shall be as follows.

1. Marking content: "CAUTION: SOLAR CIRCUIT"
2. Red background

3. White lettering
4. Minimum 3/8 inch letter height
5. All capital letters
6. Arial or similar font, non-bold
7. Reflective weather resistant material suitable for the environment (durable adhesive materials must meet this requirement)

§ **M103.2.3 Inverter marking.** No markings are required for the inverter unless the inverter is used also as a required remote electrical disconnect.

§ **M103.2.4 Remote electrical disconnect marking.** Marking shall be located immediately next to the remote electrical disconnect control as follows:

1. Marking content: "CAUTION: SOLAR CIRCUIT DISCONNECT"
2. Red background
3. White lettering
4. Minimum 3/8 inch letter height
5. All capital letters
6. Arial or similar font, non-bold
7. Reflective weather resistant material suitable for the environment (durable adhesive materials must meet this requirement)

§ **M103.3 Remote electrical disconnect.** Photovoltaic circuits shall be equipped with a means for remote electrical disconnect located downstream from the photovoltaic array at the point where the photovoltaic circuit first enters the structure, or at another approved location. The manual control to operate the remote electrical disconnect shall be located within five feet of the building's main electrical panel. The remote electrical disconnect shall be listed and meet the requirements of the California Electrical Code.

Exceptions:

1. Photovoltaic circuits contained in rigid or electrical metallic tubing running between the array combiner box and the main electrical panel which are entirely exterior to the building need not be equipped with a means of remote electrical disconnect other than the disconnects intrinsic to the system.

2. Photovoltaic circuits contained in rigid or electrical metallic tubing running between the array combiner box and the main electrical panel that run through the interior of the building when installed a minimum of 18 inches below the roof assembly when measured parallel to the surface of the roof.
3. The photovoltaic system inverter may be used for remote electrical disconnect when the inverter is located immediately upstream of the roof penetration where the circuit enters the structure.

§ M103.4 Access pathways and emergency ventilation. Access and spacing requirements shall be provided in order to ensure firefighter access to the roof, provide access pathways to specific areas of the roof, provide for venting cut out areas, and to provide emergency egress from the roof. For the purpose of access pathways and emergency ventilation, designation of ridge, hip, and valley does not apply to roofs with 2-in-12 or less pitch. All roof dimensions are measured to centerlines.

§ M103.4.1 Alternative materials and methods. Alternative materials and methods per Section 104.9 for access pathways or venting cut outs may be requested for approval by the fire code official due to:

1. Unique site specific limitations
2. Alternative access opportunities (as from adjoining roofs)
3. Ground level access to the roof area in question
4. Other adequate venting cut out opportunities when approved by the fire code official.
5. Adequate venting cut out areas afforded by panel set back from other roof top equipment (for example: shading or structural constraints may leave significant areas open for ventilation near HVAC equipment.)
6. Automatic ventilation device.
7. New technology, methods, or other innovations that ensure adequate fire department access pathways and ventilation opportunities.

§ M103.4.2 Single and two dwelling unit residential buildings access pathways and venting cut outs. Access pathways and venting cut outs for single and two dwelling unit residential buildings shall be provided as per Section M103.4.2.1 through M103.4.2.4.

§ M103.4.2.1 Hip roof layout. Solar modules shall be located in a manner that provides one three (3) foot wide clear access pathway from the eave to the ridge on

each roof slope where solar modules are located. The access pathway shall be located at a structurally strong location on the building, such as a bearing wall.

§ **M103.4.2.2 Single roof ridge.** Solar modules shall be located in a manner that provides two three (3) foot wide access pathways from the eave to the ridge on each roof slope where solar modules are located.

§ **M103.4.2.3 Roof hips and valleys.** Solar modules shall be located no closer than one and one half (1.5) feet to a hip or a valley if modules are to be placed on both sides of a hip or valley. If the solar modules are to be located on only one side of a hip or valley, that is of equal length then the panels may be placed directly adjacent to the hip or valley.

§ **M103.4.2.4 Venting cut out areas.** Solar modules shall be located no higher than three (3) feet below the ridge.

§ **M103.4.3 Commercial and industrial buildings and multi-residential buildings containing three or more dwelling units required access pathways and venting cut outs.** Access pathways and venting cut outs for commercial and industrial buildings and multi-residential buildings containing three or more dwelling units shall be provided as accordance with Section M103.4.3.1 through M103.4.3.2.6.

Exception: If the fire code official determines that the roof configuration is similar to that found in single and two dwelling unit residential buildings, the design requirements found in Section M103.4.2 may be utilized.

§ **M103.4.3.1 Array dimension.** Arrays shall be no greater than 150 feet by 150 feet in distance in either axis.

§ **M103.4.3.2 Access pathways:** Access pathways shall be established in the design of the photovoltaic system installation. Access pathways shall be provided in accordance with Section M103.4.3.2.1 through M103.4.3.2.5.

§ **M103.4.3.2.1 Access pathways perimeter of the roof.** There shall be a minimum six (6') foot wide clear perimeter around the edges of the roof.

Exception: If either axis of the building is 250 feet or less, there shall be a minimum four (4') feet wide clear perimeter around the edges of the roof.

§ **M103.4.3.2.2 Access pathway location.** The center line axis of access pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof.

§ **M103.4.3.2.3 Access pathway center line.** The center line axis of access pathways shall be provided in both axis of the roof.

§ **M103.4.3.2.4 Access pathway alignment.** Access pathways shall be in a straight line and provide not less than four (4) feet clear to skylights, ventilation hatches or roof standpipes.

§ **M103.4.3.2.5 Access pathway around roof access hatches.** Access pathways shall provide not less than four (4) feet of clearance around roof access hatch with at least one not less than four feet (4) clear pathway to parapet or roof edge.

§ **M103.4.3.2.6 Venting cut out areas.** Venting cut outs between array sections shall be either:

1. An access pathway eight (8) feet or greater in width.
2. An access pathway that is four (4) feet or greater in width and bordering on existing roof skylights or ventilation hatches.
3. An access pathway that is four (4) feet or greater in width and bordering four (4) feet by eight (8') feet venting cut outs every twenty (20) feet on alternating sides of the access pathway.

§ **M103.5 Location of conductors.** Conduit, wiring systems and wiring raceways for photovoltaic circuits shall be provided in accordance with Section M103.5.1 through M103.5.3.

§ **M103.5.1 Conductor location.** Conduit, wiring systems, and wiring raceways shall be located as close as possible to the ridge or hip or valley and from the hip or valley as directly as possible to an outside wall to reduce trip hazards and maximize venting cut out areas.

§ **M103.5.2 Conductors between sub arrays and DC combiner boxes.** Conduit runs between sub arrays and to DC combiner boxes shall use the design that minimizes the total amount of conduit on the roof by taking the shortest path from the array to the DC combiner box. The DC combiner boxes are to be located such that conduit runs are minimized in the pathways between arrays.

§ **M103.5.3 Conduit within enclosed spaces.** To limit the hazard of cutting live conduit in venting operations, DC wiring shall be run in metallic conduit or raceways when located within enclosed spaces in a building and shall be run, to the maximum extent possible, along the bottom of load-bearing members.

SECTION M104

ROOF GARDEN AND LANDSCAPED ROOFS

§ **M104.1 Roof gardens and landscaped roofs.** The requirements of Section M104 applies to all roof gardens and landscaped roofs regardless of size or if used for residential and commercial purposes. Roof gardens and landscaped roofs shall be

designed, constructed and installed in accordance with Section M104.2 through M104.4.

§ M104.2 Access pathways and emergency ventilation. Access and spacing requirements shall be provided in order to ensure firefighter access to the roof, provide access pathways to specific areas of the roof, provide for venting cut out areas, and to provide emergency egress from the roof. For the purpose of access pathways and emergency ventilation, designation of ridge, hip, and valley does not apply to roofs with 2-in-12 or less pitch. All roof dimensions are measured to centerlines.

§ M104.2.1 Alternative materials and methods. Alternative materials and methods per Section 104.9 for access pathways or venting cut outs may be requested for approval by the fire code official due to:

1. Unique site specific limitations
2. Alternative access opportunities (as from adjoining roofs)
3. Ground level access to the roof area in question
4. Other adequate venting cut out opportunities when approved by the fire code official.
5. Adequate venting cut out areas afforded by panel set back from other roof top equipment (for example: shading or structural constraints may leave significant areas open for ventilation near HVAC equipment.)
6. Automatic ventilation device.
7. New technology, methods, or other innovations that ensure adequate fire department access pathways and ventilation opportunities.

§ M104.2.2 Single and two dwelling unit residential buildings. Installation of roof gardens and landscaped roofs on single and two dwelling unit residential buildings shall be in accordance with Section M104.2.2.1 through M104.2.2.3.

§ M104.2.2.1 Hip roof design: Planted sections shall be located in a manner that provides a three (3) foot wide clear access pathway from the eave to the ridge on each roof slope where the planted sections are located. The access pathway shall be located at a structurally strong location on the building such as a bearing wall.

§ M104.2.2.2 Single ridge roof design: Planted sections shall be located in a manner that provides two three (3) foot wide access pathways from the eave to the ridge on each roof slope where the planted sections are located.

§ **M104.2.2.3 Hips and valleys:** Planted sections shall be located no closer than one and one half (1.5) feet to a hip or a valley if planted sections are to be placed on both sides of a hip or valley. If the planted sections are to be located on only one side of a hip or valley that is of equal length then the planted sections may be placed directly adjacent to the hip or valley. Planted sections shall not be located closer than three (3) feet below the ridge.

§ **M104.2.3 Commercial and industrial buildings and multi-residential buildings containing three or more dwelling units required access pathways and venting cut outs.** Access pathways and venting cut outs for commercial and industrial buildings and multi-residential buildings containing three or more dwelling units. Access pathways shall be provided in accordance with Section M104.2.3.1 through M104.2.3.6.

Exception: If the fire code official determines that the roof configuration is similar to that found in single and two dwelling unit residential buildings, the design requirements found in section M104.2.2 may be utilized.

§ **M104.2.3.1 Planted dimension.** Planted sections shall be no greater than 150 feet by 150 feet in distance in either axis.

§ **M104.2.3.2 Access pathways:** Access pathways shall be established in the design of the roof garden or landscaped roof installation. Access pathways shall meet the requirements of this section.

§ **M104.2.3.2.1 Access pathways perimeter of the roof.** There shall be a minimum six (6) foot wide clear perimeter around the edges of the roof.

Exception: If either axis of the building is 250 feet or less, there shall be a minimum four (4) feet wide clear perimeter around the edges of the roof.

§ **M104.2.3.2.2 Access pathway location.** The center line axis of access pathways shall run on structural members or over the next closest structural member nearest to the center lines of the roof.

§ **M104.2.3.2.3 Access pathway center line.** The center line axis of the access pathways shall be provided in both axis of the roof.

§ **M104.2.3.2.4 Access pathway alignment.** Access pathways shall be in a straight line and provide not less than four (4) feet clear to skylights, ventilation hatches or roof standpipes.

§ **M104.2.3.5 Access pathway around roof access hatches.** Access pathways shall provide not less than four (4) feet of clearance around roof access hatch with at least one not less than four feet (4) clear pathway to parapet or roof edge.

§ **M104.2.3.6 Venting cut out areas.** Venting cut outs between planted sections shall be either:

1. An access pathway eight (8) feet or greater in width.
2. An access pathway that is four (4) feet or greater in width and bordering on existing roof skylights or ventilation hatches.
3. An access pathway that is four (4) feet or greater in width and bordering four (4') feet by eight (8) feet venting cut outs every twenty (20) feet on alternating sides of the access pathway.

§ **M105.4 Roof garden or landscaped roof maintenance plan.** The fire code official is authorized to require an approved maintenance plan for vegetation placed on roofs due to the size of the garden or landscaping area, or if materials and plants used may create a fire hazard to the building or exposures.

13-10-4: GEOGRAPHICAL LIMITS

Geographic limits referred to in certain sections of this Code are established as follows:

Establishment of limits of districts in which storage of flammable cryogenic fluids in stationary containers are prohibited.

The limits referred to in Section 3204.3.1.1 in which storage of flammable cryogenic fluids in stationary containers is prohibited are established as the City of El Segundo's corporate boundaries.

Exceptions:

1. The storage of flammable cryogenic fluids in stationary containers is allowed in an M-1, MM, and MU-N Zone with a Conditional Use Permit issued by the Planning Department.
2. The storage of flammable cryogenic fluids in stationary containers is allowed in the M-2 Zone.

Establishment of limits of districts in which storage of flammable or combustible liquids in outside aboveground tanks is prohibited.

The limits referred to in Sections 3404.2.9.5.1 and 3406.2.4.4 in which the storage of Class I flammable liquids or Class II combustible liquids in aboveground tanks outside of buildings is restricted are established as the City of El Segundo's corporate boundaries.

Exceptions: Such use is allowed in the following zoning districts:

1. The storage of Class I flammable liquids or Class II combustible liquids in aboveground tanks outside of buildings is allowed in M-1 and M-2, Zones;

2. The storage of Class II combustible liquids in aboveground tanks outside of buildings is allowed in C-0, MM, MU-N, MU-S or P-F Zones;

Establishment of limits of districts in which storage of liquefied petroleum gases is to be restricted.

The limits referred to in Section 3804.2, in which storage of liquefied petroleum gas in excess of an aggregate of 2,000 gallons water capacity is restricted are established as the City of El Segundo's corporate boundaries.

Exceptions:

1. The storage of liquefied petroleum gas in excess of an aggregate of 2,000 gallons water capacity is allowed in the M-2 Zone, when located at least one-half (1/2) mile from property zoned or designated for residential use and at least one-half (1/2) mile from existing residential development with a density greater than one (1) dwelling unit per acre and at least one-half (1/2) mile from any hotel or motel.
2. The storage of liquefied petroleum gas in excess of an aggregate of 2,000 gallons water capacity is allowed in M-1 Zone with a Conditional Use Permit issued by the Planning Department.

SECTION 4: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, *et seq.*, "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, *et seq.*, the "CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment. Consequently, it is categorically exempt in accordance with CEQA Guidelines §§ 15301 as a minor alteration of existing public or private structures involving no expansion of use; 15305 as a minor alteration in land use limitations which do not result in any changes in land use or density; and 15308 as an action taken by a regulatory agency as authorized by California law to assure maintenance or protection of the environment.

SECTION 5: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.


SECTION 6: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 7: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 8: The City Clerk is directed to certify the passage and adoption of this Ordinance; cause it to be entered into the City of El Segundo's book of original ordinances; make a note of the passage and adoption in the records of this meeting; and, within fifteen (15) days after the passage and adoption of this Ordinance, cause it to be published or posted in accordance with California law.

SECTION 9: This Ordinance will become effective on January 1, 2011.

PASSED AND ADOPTED this 16th day of November, 2010.


Eric Busch, Mayor

The foregoing instrument is a full, true, and correct copy of the original on file in this

Office:

ATTEST:

November 23, 2010



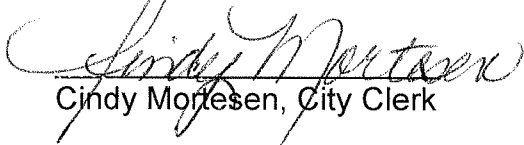
City Clerk, City of El Segundo

ATTEST:

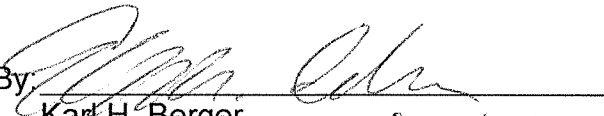
STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1453 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2007, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2007, and the same was so passed and adopted by the following vote:

AYES: Busch, Fisher, Brann, Fuentes
NOES: None
ABSENT: Jacobson
ABSTAIN: None


Cindy Mortesen, City Clerk

APPROVED AS TO FORM:
Mark D. Hensley, City Attorney

By 
Karl H. Berger
Assistant City Attorney
*2/12/2008 Karl H. Berger
Deputy City Attorney*

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ORDINANCE NO. 1454

**AN ORDINANCE ADOPTING THE 2010 EDITION OF THE
CALIFORNIA ENERGY CODE WITH AMENDMENTS.**

The Council of the City of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

- A. Health and Safety Code § 17958 requires the City is required to adopt certain codes that are set forth in Health and Safety Code § 17922 and published in the California Code of Regulations;
- B. Pursuant to Government Code §§ 50022.2, *et seq.*, the City may adopt other uniform codes by reference;
- C. It is in the public interest to adopt the 2010 Edition of the California Energy Code set forth in this Ordinance;
- D. At least one copy of the California Energy Code was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

CHAPTER 15

ENERGY CODE

SECTION 2: Chapter 15 is amended in it's entirety in Title 13 of the El Segundo Municipal Code ("ESMC") to read as follows:

13-15-1: ADOPTION OF CALIFORNIA ENERGY CODE, 2010 EDITION. Pursuant to California Government Code §§ 50022.1 to 50022.8, inclusive, the California Energy Code, 2010 Edition, published at Title 24, Part 6, of the California Code of Regulations, is adopted by reference, set forth below. One true copy of the California Energy Code, is on file in the office of the Building Official and is available for public inspection as required by law.

SECTION 3: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION.

The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, et seq., "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, et seq., the "State CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment.

SECTION 4: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 5: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 6: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 7: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

PASSED AND ADOPTED this 16th day of November, 2010.

The foregoing instrument is a full, true, and
correct copy of the original on file in this

Office:

ATTEST:

November 23, 2010 Eric Bosch Mayor

Cathy Dorman
City Clerk, City of El Segundo

ATTEST:

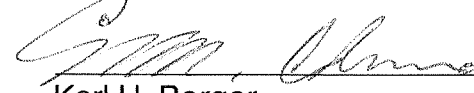
STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1454 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: Busch, Fisher, Brann, Fuentes
NOES: None
ABSENT: Jacobson
ABSTAIN: None


Cindy Mortesen, City Clerk

APPROVED AS TO FORM:

By:  Mark D. Hensley, City Attorney
Karl H. Berger Elizabeth M. Elciaw
Assistant City Attorney Deputy City Attorney

ORDINANCE NO. 1455

AN ORDINANCE INCORPORATING THE 2010 CALIFORNIA RESIDENTIAL CODE ("CRC") BY REFERENCE AND AMENDING THE CRC BASED UPON LOCAL CLIMATIC, TOPOGRAPHIC, AND GEOLOGICAL CONDITIONS.

The council of the city of El Segundo does ordain as follows:

SECTION 1: **FINDINGS.** The City Council finds and declares as follows:

A. In accord with Health & Safety Code § 17958.7, it is in the public interest to adopt the California Residential Code ("CRC") with the changes set forth in this Ordinance.

B. Pursuant to the requirements of Health & Safety Code Section 17958.7, the City Council finds that there are local geological conditions justifying the CRC amendments set forth below.

The City of El Segundo and the greater Los Angeles region is a densely populated area having buildings and structures constructed over and near a vast array of fault systems capable of producing major earthquakes, including but not limited to the recent 1994 Northridge Earthquake. The proposed modification emphasize that the design concern is for seismic-force-resisting elements and therefore need to be incorporated into the code to assure that new buildings and structures and additions or alterations to existing buildings or structures are designed and constructed in accordance with the scope and objectives of the International Building Code. Experts predict a major earthquake in our area within the next 50 years. This situation creates the need for both additional fire protection measures and automatic on-site fire protection of building occupants since a multitude of fires may result from breakage of gas and electric lines as a result of an earthquake. After due consideration, the City Council finds and determines that due to local climatic, geological, or topographical conditions, the structural and fire protection amendments to the 2010 CRC are necessary to give buildings a reasonable degree of structural integrity and fire life safety to help protect public health and safety in the event of a seismic event;

Additional amendments have been made to Codes are hereby found to be either administrative or procedural in nature or concern themselves with subjects not covered in such Codes. The changes made include provisions making each of said Codes compatible with other Codes enforced by the City.

C. The specific amendments of the CRC that fulfill this requirement are:

1. Amend CRC Section R301.1.3.2 Woodframe Structures
2. Amend CRC Section R301.2.2.2.5 Irregular Buildings
3. Amend CRC Section R311.2.2.3.5.1 AISI S230 Section B1
4. Amend CRC Section R322.1.4.1 Design Flood Elevations
5. Amend CRC Section R322.1.4.1 Design Flood Elevations

6. Amend CRC Section R401.1 Foundation Application
7. Amend CRC Section R403.1 General Footings
8. Amend CRC Section R404.2 Wood Foundation Walls
9. Amend CRC Section R501.1 Application
10. Amend CRC Section R503.2.4 Openings In Horizontal Diaphragms
11. Amend CRC Table R602.3(1) Fastener Schedule
12. Amend CRC Table R602.3(2) Alternate Attachment
13. Amend CRC Table R602.10.1.2(2) Bracing Requirement
14. Amend CRC Table R602.10.2 Intermittent Bracing Method
15. Amend CRC Figure R602.10.3.2 Alternate Braced Wall Panel
16. Amend CRC Figure R602.10.3.3 Portal Frame
17. Amend CRC Section R602.10.3.3 Method PFH
18. Amend CRC Table R602.10.4.1 Continuous Sheathing
19. Amend CRC Figure R602.10.4.1.1 Method CS-PF
20. Delete CRC Section R602.10.7.1 Braced Wall Panel
21. Amend CRC Section R606.2.4 Parapet Walls
22. Amend CRC Section R606.12.2.2.3 Reinforcement for Masonry
23. Amend CRC Section R602.3.2 Single Top Plate
24. Amend CRC Table R802.5.1(9) Joist Heel Joint Connection
25. Amend CRC Section R802.8 Lateral Support
26. Amend CRC Section R802.10.2 Design of Wood Trusses
27. Add CRC Section R803.2.4 Openings in Horizontal Diaphragms
28. Amend CRC Section R1001.3.1 Vertical Reinforcing

D. At least one copy of the CBC was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: El Segundo Municipal Code ("ESMC") § 13-16-1 is added in its entirety to read as follows:

CHAPTER 16

RESIDENTIAL CODE

- 13-16-1: California Residential Code Adopted
- 13-16-2: Amendments to California Residential Code

13-16-1: ADOPTION OF CALIFORNIA RESIDENTIAL CODE, 2010 EDITION. Pursuant to California Government Code § 50022.2, the California Residential Code, 2010 Edition, published at Title 24, Part 2.5, of the California Code of Regulations is adopted by reference, subject to the amendments, additions and deletions set forth below. One true copy of the CRC, is on file in the office of the Building Official and is available for public inspection as required by law."

SECTION 3: ESCMC § 13-16-2 is added to read as follows:

"13-16-2: AMENDMENTS TO THE CALIFORNIA RESIDENTIAL CODE:

Section R301.1.3.2 of the 2010 Edition of the California Residential Code is amended to read as follows:

R301.1.3.2 Woodframe structures. The building official shall require construction documents to be approved and stamped by a California licensed architect or engineer for all dwellings of woodframe construction more than two stories and basement in height located in Seismic Design Category A, B or C. Notwithstanding other sections the law, the law establishing these provisions is found in Business and Professions Code Section 5537 and 6737.1.

The building official shall require construction documents to be approved and stamped by a California licensed architect or engineer for all dwellings of woodframe construction more than one story in height or with a basement located in Seismic Design Category D₀, D₁, D₂ or E.

Section R301.2.2.2.5 of the 2010 Edition of the California Residential Code is amended to read as follows:

1. When exterior shear wall lines or braced wall panels are not in one plane vertically from the foundation to the uppermost story in which they are required.
3. When the end of a braced wall panel occurs over an opening in the wall below.
5. When portions of a floor level are vertically offset.

Section R301.2.2.3.5.1 is added to Section 301.2.2.3.5 of the 2010 Edition of the California Residential Code as follows:

R301.2.2.3.5.1 AISI S230, Section B1. Modify AISI S230, Section B1 to read as follows:

Where No. 8 screws are specified, the required number of screws in a steel-to-steel connection shall be permitted to be reduced in accordance with the reduction factors in Table B1-1 when larger screws are used or when the sheets of steel being connected is thicker than 33 mils (0.84mm). When applying the reduction factor, the resulting number of screws shall be rounded up.

Section R322.1.4.1 of the 2010 Edition of the California Residential Code is amended to read as follows:

R322.1.4.1 Determination of design flood elevations. If design flood elevations are not specified, the building official is authorized to require the applicant to:

1. Obtain and reasonably use data available from a federal, state or other source; or
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic undertaken by a registered civil engineer who shall determine that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted insufficient detail to allow thorough review and approval.

Section R401.1 of the 2010 Edition of the California Residential Code is amended to read as follows:

R401.1 Application. The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for all buildings. In addition to the provisions of this chapter, the design and construction of foundations in areas prone to flooding as established by Table R301.2(1) shall meet the provisions of Section R322. Wood foundations shall be designed and installed in accordance with AF&PA PWF.

Exception: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have no more than two floors and a roof.
2. When interior basement and foundation walls are constructed at intervals not exceeding 50 feet (15 240 mm).

Wood foundations in Seismic Design Category D₀, D₁ or D₂ shall not be permitted.

Exception: In non-occupied, single-story, detached storage sheds and similar uses other than carport or garage, provided the gross floor area does not exceed 200 square feet, the plate height does not exceed 12 feet in height above the grade plane at any point, and the maximum roof projection does not exceed 24 inches.

Sections R403.1.2, R403.1.3, R403.1.5 of the 2010 Edition of the California Residential Code are amended to read as follows:

R403.1.2 Continuous footing in Seismic Design Categories D₀, D₁ and D₂. The braced wall panels at exterior walls of buildings located in Seismic Design Categories D₀, D₁ and D₂ shall be supported by continuous footings. All required interior braced wall panels in buildings shall be supported by continuous footings.

R403.1.3 Seismic reinforcing. Concrete footings located in Seismic Design Categories D₀, D₁ and D₂, as established in Table R301.2(1), shall have minimum reinforcement. Bottom reinforcement shall be located a minimum of 3 inches (76 mm) clear from the bottom of the footing.

In Seismic Design Categories D₀, D₁ and D₂ where construction joint is created between a concrete footing and a stem wall, a minimum of one No. 4 bar shall be installed at not more than 4 feet (1219 mm) on center. The vertical bar shall extend to 3 inches (76 mm) clear of the bottom of the footing, have a standard hook and extend a minimum of 14 inches (357 mm) into the stem wall.

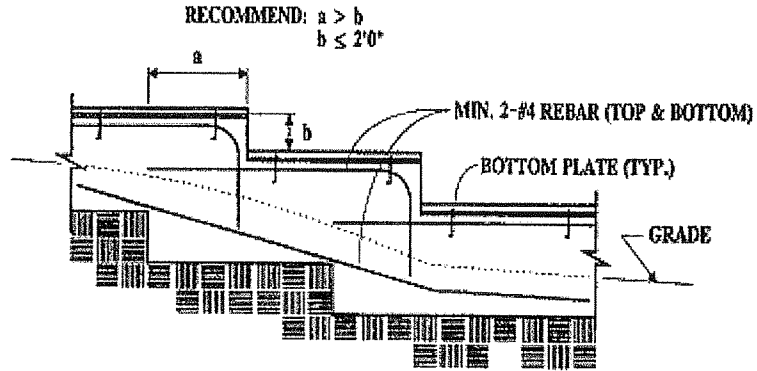
In Seismic Design Categories D₀, D₁ and D₂ where a grouted masonry stem wall is supported on a concrete footing and stem wall, a minimum of one No. 4 bar shall be installed at not more than 4 feet (1219 mm) on center. The vertical bar shall extend to 3 inches (76 mm) clear of the bottom of the footing and have a standard hook.

In Seismic Design Categories D₀, D₁ and D₂ masonry stem walls without solid grout and vertical reinforcing are not permitted.

Exception: In detached one- and two-family dwellings located in Seismic Design Category A, B or C which are three stories or less in height and constructed with stud bearing walls, plain concrete footings without longitudinal reinforcement supporting walls and isolated plain concrete footings supporting columns or pedestals are permitted.

R403.1.5 Slope. The top surface of footings shall be level. The bottom surface of footings shall be permitted to have a slope not exceeding one unit vertical in 10 units horizontal (10-percent slope). Footings shall be stepped where it is necessary to change the elevation of the top surface of the footing or where the surface of the ground slopes more than one unit vertical in 10 units horizontal (10-percent slope).

For structures located in Seismic Design Categories D₀, D₁ or D₂, stepped footings shall be reinforced with four 1/2-inch diameter (12.7 mm) deformed reinforcing bars. Two bars shall be placed at the top and bottom of the footings as shown in Figure R403.1.5.



STEPPED FOUNDATIONS

FIGURE R403.1.5
 STEPPED FOOTING

Section R404.2 of the 2010 Edition of the California Residential Code is amended to read as follows:

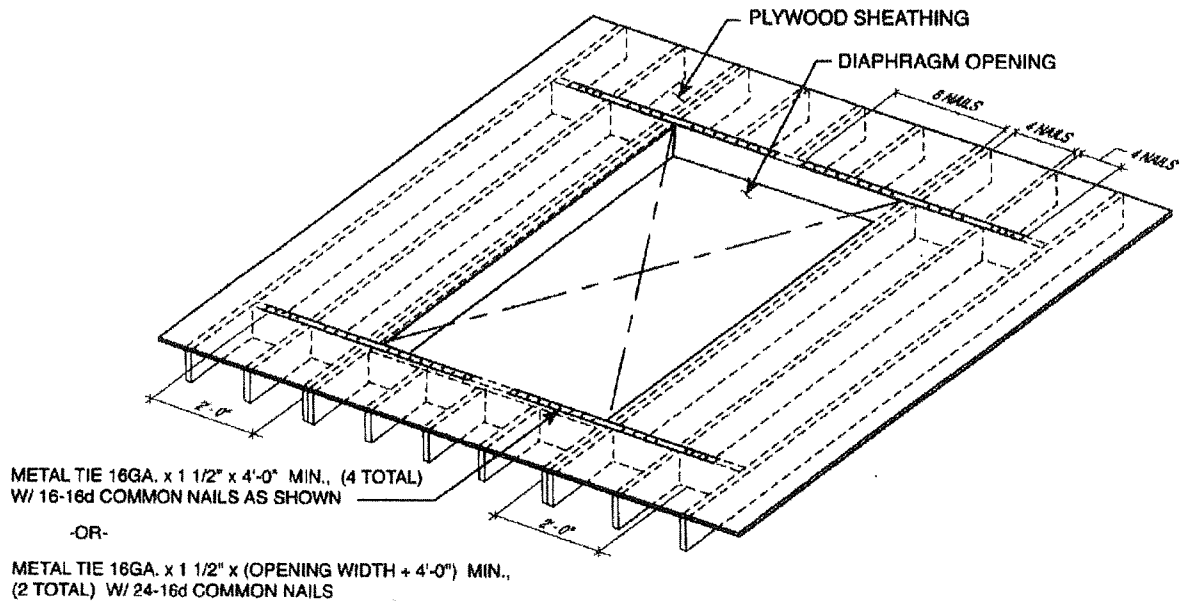
R404.2 Wood foundation walls. Wood foundation walls shall be constructed in accordance with the provisions of Sections R404.2.1 through R404.2.6 and with the details shown in Figures R403.1(2) and R403.2(3). Wood foundation walls shall not be used for structures located in Seismic Design Category D_0 , D_1 or D_2 .

Section R501.1 of the 2010 Edition of the California Residential Code is amended to read as follows:

R501.1 Application. The provision of this chapter shall control the design and construction of the floors for all buildings including the floors of attic spaces used to house mechanical or plumbing fixtures and equipment weighing less than 400 lbs and maximum height of 4 feet above the floor or attic level.

Section R503.2.4 is added to Chapter 5 of the 2010 Edition of the California Residential Code to read as follows:

R503.2.4 Openings in horizontal diaphragms. Openings in horizontal diaphragms with a dimension perpendicular to the joist that is greater than 4 feet (1.2 m) shall be constructed in accordance with Figure R503.2.4.



For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm.

- Blockings shall be provided beyond headers.
- Metal ties not less than 0.058 inch [1.47 mm (16 galvanized gage)] by 1.5 inches (38 mm) wide with eight 16d common nails on each side of the header-joist intersection. The metal ties shall have a minimum yield of 33,000 psi (227 MPa).
- Openings in diaphragms shall be further limited in accordance with Section R301.2.2.2.5.

FIGURE R503.2.4
OPENINGS IN HORIZONTAL DIAPHRAGMS

Lines 34 thru 37 of Table R602.3(1) of the 2010 Edition of the California Residential Code are amended to read as follows:

Other wall sheathing ^h				
34	$\frac{1}{2}$ " structural cellulosic fiberboard sheathing	$\frac{1}{2}$ " galvanized roofing nail, $\frac{7}{16}$ " crown or 1" crown staple 16 ga., $\frac{1}{4}$" long	3	6
35	$\frac{25}{32}$ " structural cellulosic fiberboard sheathing	$\frac{3}{4}$ " galvanized roofing nail, $\frac{7}{16}$ " crown or 1" crown staple 16 ga., $\frac{1}{2}$" long	3	6
36	$\frac{1}{2}$ " gypsum sheathing ^d	$\frac{1}{2}$ " galvanized roofing nail; staple galvanized, $\frac{1}{2}$" long; $\frac{1}{4}$" screws, Type W or S	7	7
37	$\frac{5}{8}$ " gypsum sheathing ^d	$\frac{3}{4}$ " galvanized roofing nail; staple galvanized, $\frac{5}{8}$" long; $\frac{5}{8}$" screws, Type W or S	7	7

Table R602.3(2) of the 2010 Edition of the California Residential Code is amended to read as follows:

Wood structural panels subfloor, roof and wall sheathing to framing and particleboard wall sheathing to framing ^f			
up to $\frac{1}{2}$	Staple 15 ga. $1\frac{3}{4}$	4	8
	0.097 - 0.099 Nail $2\frac{1}{4}$	3	6
	Staple 16 ga. $1\frac{3}{4}$	3	6
$\frac{19}{32}$ and $\frac{5}{8}$	0.113 Nail 2	3	6
	Staple 15 and 16 ga. 2	4	8
	0.097 - 0.099 Nail $2\frac{1}{4}$	4	8
$\frac{23}{32}$ and $\frac{3}{4}$	Staple 14 ga. 2	4	8
	Staple 15 ga. $1\frac{3}{4}$	3	6
	0.097 - 0.099 Nail $2\frac{1}{4}$	4	8
	Staple 16 ga. 2	4	8
1	Staple 14 ga. $2\frac{1}{4}$	4	8
	0.113 Nail $2\frac{1}{4}$	3	6
	Staple 15 ga. $2\frac{1}{4}$	4	8

Floor underlayment; plywood-hardboard-particleboard ^f			
Plywood			
$\frac{1}{4}$ and $\frac{5}{16}$	$1\frac{1}{4}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	3	6
	Staple 18 ga. $\frac{7}{8}$, $\frac{3}{16}$ crown width	2	5
$\frac{11}{32}$, $\frac{3}{8}$, $\frac{15}{32}$, and $\frac{1}{2}$	$1\frac{1}{4}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	6	8 ^e
$\frac{19}{32}$, $\frac{5}{8}$, $\frac{23}{32}$, and $\frac{3}{4}$	$1\frac{1}{2}$ ring or screw shank nail-minimum $12\frac{1}{2}$ ga. (0.099") shank diameter	6	8
	Staple 16 ga. $1\frac{1}{2}$	6	8

Table R602.10.1.2(2) of the 2010 Edition of the California Residential Code is amended to read as follows:

TABLE R602.10.1.2(2)^{a, b, c}
BRACING REQUIREMENTS BASED ON SEISMIC DESIGN CATEGORY
(AS A FUNCTION OF BRACED WALL LINE LENGTH)

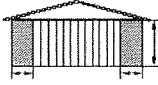

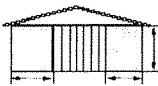

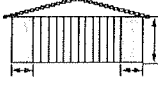
SOIL CLASS D ^a WALL HEIGHT = 10 FT 10 PSF FLOOR DEAD LOAD 15 PSF ROOF/CEILING DEAD LOAD BRACED WALL LINE SPACING ≤ 25 FT			MINIMUM TOTAL LENGTH (feet) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINE			
Seismic Design Category (SDC)	Story Location	Braced Wall Line Length	Method LIB	Methods ^d DWB, SFB, GB, PBS, PCP, HPS	Method WSP	Continuous Sheathing
SDC D ₀ or D ₁		10	NP	3.0 6.0	2.0	1.7
		20	NP	6.0 12.0	4.0	3.4
		30	NP	9.0 18.0	6.0	5.1
		40	NP	12.0 24.0	8.0	6.8
		50	NP	15.0 30.0	10.0	8.5
		10	NP	6.0 NP	4.5	3.8
		20	NP	12.0 NP	9.0	7.7
		30	NP	18.0 NP	13.5	11.5
		40	NP	24.0 NP	18.0	15.3
		50	NP	30.0 NP	22.5	19.1
		10	NP	8.5 NP	6.0	5.1
		20	NP	17.0 NP	12.0	10.2
		30	NP	25.5 NP	18.0	15.3
		40	NP	34.0 NP	24.0	20.4
		50	NP	42.5 NP	30.0	25.5
SDC D ₂		10	NP	4.0 8.0	2.5	
		20	NP	8.0 16.0	5.0	
		30	NP	12.0 24.0	7.5	
		40	NP	16.0 32.0	10.0	
		50	NP	20.0 40.0	12.5	
		10	NP	7.5 NP	5.5	
		20	NP	15.0 NP	11.0	
		30	NP	22.5 NP	16.5	
		40	NP	30.0 NP	22.0	
		50	NP	37.5 NP	27.5	
		10	NP	NP	NP	
		20	NP	NP	NP	
		30	NP	NP	NP	
		40	NP	NP	NP	
		50	NP	NP	NP	

- d. Methods GB and PCP braced wall panel h/w ratio shall not exceed 1:1 in SDC D₀, D₁, and D₂. Methods DWB, SFB, PBS, and HPS are not permitted in SDC D₀, D₁, and D₂.

Table R602.10.2 of the 2010 Edition of the California Residential Code is amended to read as follows:

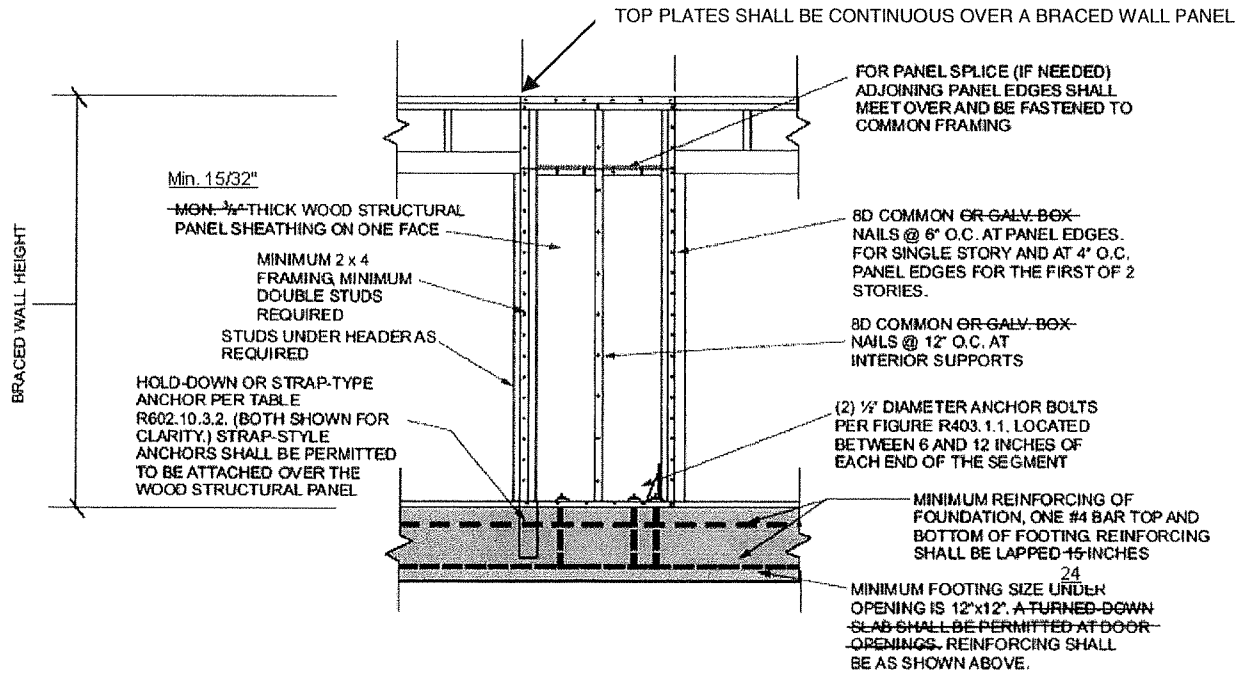
TABLE R602.10.2
INTERMITTENT BRACING METHODS^a

8d common (2 1/2" x 0.131) nails at 6" spacing (panel edge) at 12" spacing (intermediate supports), 3/8" edge distance to panel edge

WSP	Wood structural panel (see Section R604)	$\frac{3}{8}$ " 15/32"		For exterior/interior sheathing— see Table R602.3(3). For interior sheathing— see Table R602.3(4).
SFB	Structural fiberboard sheathing	1/2" or 25/32" for maximum 16" stud spacing		1 1/2" galvanized roofing nails or 8d common (2 1/2" x 0.131) nails at 3" spacing (panel edges) at 6" spacing (intermediate supports)
GB	Gypsum board	1/2"		Nails or screws at 7" spacing at panel edges including top and bottom plates; for all braced wall panel locations for exterior sheathing nail or screw size, see Table R602.3(1); for interior gypsum board nail or screw size, see Table R702.3.5
PBS	Particleboard sheathing (see Section R605)	3/8" or 1/2" for maximum 16" stud spacing		1 1/2" galvanized roofing nails or 8d common (2 1/2" x 0.131) nails at 3" spacing (panel edges) at 6" spacing (intermediate supports)
PCP	Portland cement plaster	See Section R703.6 For maximum 16" stud spacing		1 1/2", 11 gage, 7/16" head nails at 6" spacing or— 7/8", 16 gage staples at 6" spacing—

- a. Methods GB and PCP braced wall panel h/w ratio shall not exceed 1:1 in SDC D₀, D₁, and D₂. Methods LIB, DWB, SFB, PBS, HPS, and PFG are not permitted in SDC D₀, D₁, and D₂.

Figure R602.10.3.2 of the 2010 Edition of the California Residential Code is amended to read as follows:



**FIGURE R602.10.3.2
ALTERNATE BRACED WALL PANEL**

Figure R602.10.3.3 of the 2010 Edition of the California Residential Code is amended to read as follows:

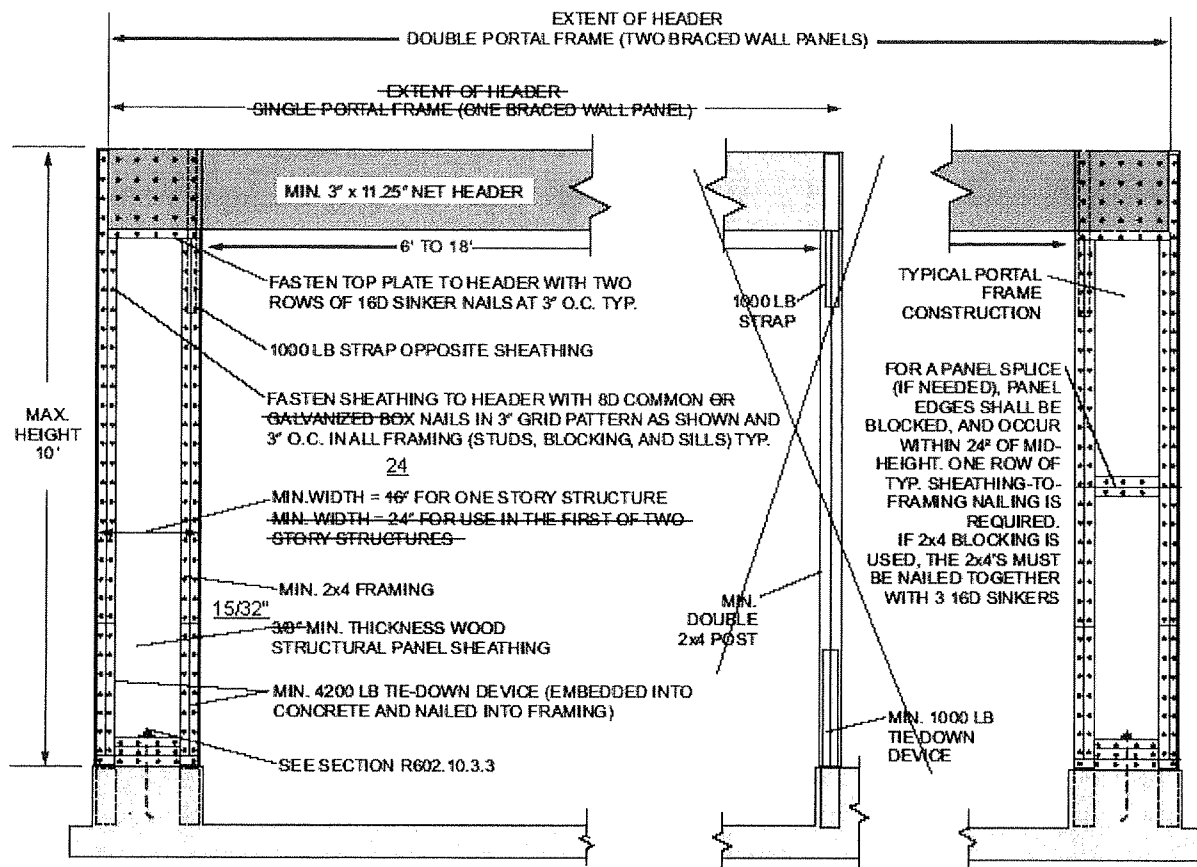


FIGURE R602.10.3.3

METHOD PFH: PORTAL FRAME WITH HOLD-DOWNS AT DETACHED GARAGE DOOR OPENINGS

Item 1 of Section R602.10.3.3 of the 2010 Edition of the California Residential Code is amended to read as follows:

1. Each panel shall be fabricated in accordance with Figure R602.10.3.3. The wood structural panel sheathing shall extend up over the solid sawn or glued-laminated header and shall be nailed in accordance with Figure R602.10.3.3. A spacer, if used with a built-up header, shall be placed on the side of the built-up beam opposite the wood structural panel sheathing. The header shall extend between the inside faces of the first full-length outer studs of each panel. One anchor bolt not less than 5/8-inch-diameter (16 mm) and installed in accordance with Section R403.1.6 shall be provided in the center of each sill plate. The hold-down devices shall be an embedded-strap type, installed in accordance with the manufacturer's recommendations. The panels shall be supported directly on a foundation that is continuous across the entire length of the braced wall line. The foundation shall be reinforced as shown on Figure R602.10.3.2. This reinforcement shall be lapped not less than 24 inches (610 mm) with the reinforcement required in the continuous foundation located directly under the braced wall line.

Table R602.10.4.1 of the 2010 Edition of the California Residential Code is amended to read as follows:

**TABLE R602.10.4.1
CONTINUOUS SHEATHING METHODS**

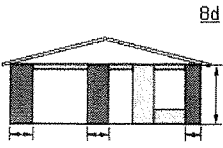
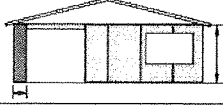
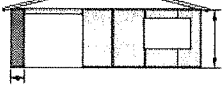
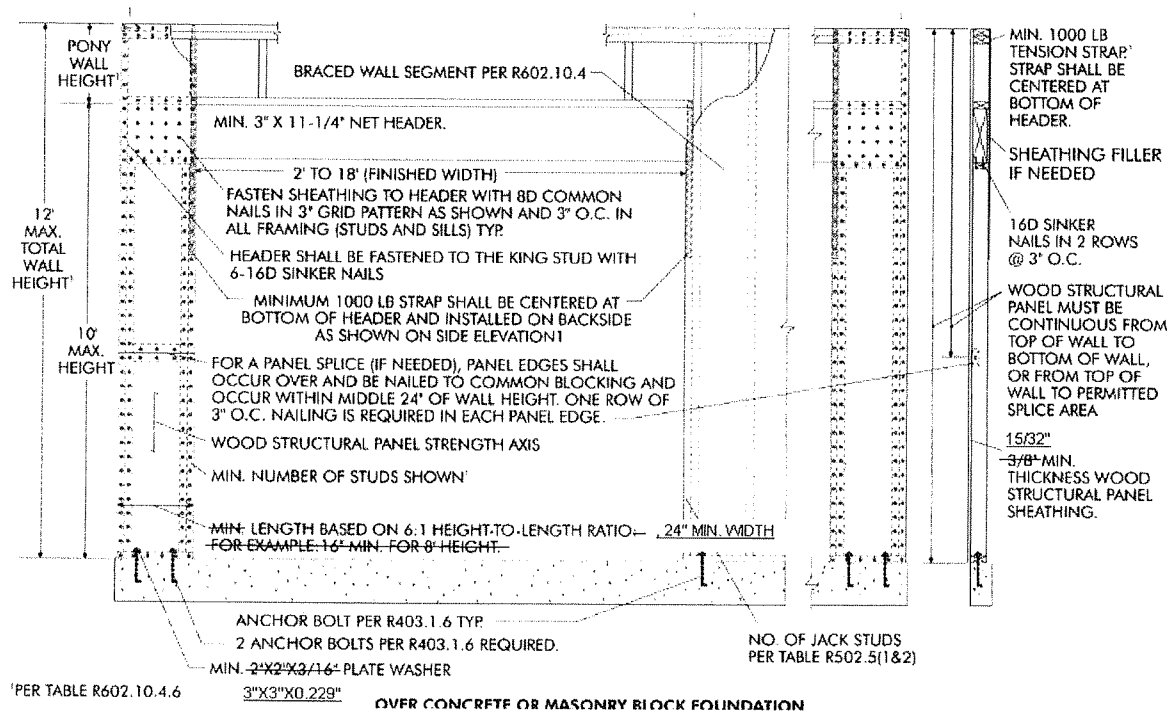
METHOD	MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA
CS-WSP	Wood structural panel	$\frac{15}{32}"$ $\frac{3_f}{8}"$		6d common (2" x 0.113") nails at 6" spacing (panel edges) and at 12" spacing (intermediate supports) or 16 ga. x 1 $\frac{3}{4}"$ staples at 3" spacing (panel edges) and 6" spacing (intermediate supports)
CS-G	Wood structural panel adjacent to garage openings and supporting roof load only ^{a,b}	$\frac{15}{32}"$ $\frac{3_f}{8}"$		See Method CS-WSP
CS-PF	Continuous portal frame	See Section R602.10.4.1.1		See Section R602.10.4.1.1

Figure R602.10.4.1.1 of the 2010 Edition of the California Residential Code is amended to read as follows:



Section R602.10.7.1 of the 2010 Edition of the California Residential Code is deleted in its entirety:

Section R606.2.4 of the 2010 Edition of the California Residential Code is amended to read as follows:

R606.2.4 Parapet walls. Unreinforced solid masonry parapet walls shall not be less than 8 inches (203 mm) thick and their height shall not exceed four times their thickness. Unreinforced hollow unit masonry parapet walls shall be not less than 8 inches (203 mm) thick, and their height shall not exceed three times their thickness. Masonry parapet walls in areas subject to wind loads of 30 pounds per square foot (1.44 kPa) or located in Seismic Design Category D₀, D₁ or D₂, or on townhouses in Seismic Design Category C shall be reinforced in accordance with Section R606.12.

Section R606.12.2.2.3 of the 2010 Edition of the California Residential Code is amended to read as follows:

R606.12.2.2.3 Reinforcement of requirements for masonry elements. Masonry elements listed in Section R606.12.2.2 shall be reinforced in either the horizontal or vertical direction as shown in Figure R606.11(2)R606.11(3) and in accordance with the following:

1. Horizontal reinforcement. Horizontal joint reinforcement shall consist of at least one No. 4 bar spaced not more than 48 inches (1219 mm). Horizontal reinforcement shall be provided within 16 inches (406 mm) of the top and bottom of these masonry elements.
2. Vertical reinforcement. Vertical reinforcement shall consist of at least one No. 4 bar spaced not more than 48 inches (1219 mm). Vertical reinforcement shall be within 8 inches (406mm) of the ends of masonry walls.

Exception of Section 602.3.2 of the 2010 Edition of the California Residential Code is amended to read as follows:

Exception: In other than Seismic Design Category D₀, D₁ or D₂, a single top plate may be installed in stud walls, provided the plate is adequately tied at joints, corners and intersecting walls by a minimum 3-inch-by-6-inch by a 0.036-inch-thick (76 mm by 152 mm by 0.914 mm) galvanized steel plate that is nailed to each wall or segment of wall by six 8d nails on each side, provided the rafters or joists are centered over the studs with a tolerance of no more than 1 inch (25 mm). The top plate may be omitted over lintels that are adequately tied to adjacent wall sections with steel plates or equivalent as previously described.

Footnote "i" is added to Table R802.5.1(9) of the 2010 Edition of the California Residential Code to read as follows:

- i. Edge distances, end distances and spacings for nails shall be sufficient to prevent splitting of the wood.

Section R802.8 of the 2010 Edition of the California Residential Code is amended to read as follows:

R802.8 Lateral support. Roof framing members and ceiling joists having a depth-to-thickness ratio exceeding 52 to 1 based on nominal dimensions shall be provided with lateral support at points of bearing to prevent rotation. For roof rafters with ceiling joists attached per Table R602.3(1), the depth-thickness ratio for the total assembly shall be determined using the combined thickness of the rafter plus the attached ceiling joist.

Section R802.10.2 of the 2010 Edition of the California Residential Code is amended to read as follows:

R802.10.2 Design. Wood trusses shall be designed in accordance with accepted engineering practice. The design and manufacture of metal-plate-connected wood trusses shall comply with ANSI/TPI 1. The truss design drawings shall be prepared by a registered professional.

Section R803.2.4 is added to Chapter 8 of the 2010 Edition of the California Residential Code to read as follows:

R803.2.4 Openings in horizontal diaphragms. Openings in horizontal diaphragms shall conform with Section R503.2.4.

Section R1001.3.1 of the 2010 Edition of the California Residential Code is amended to read as follows:

R1001.3.1 Vertical reinforcing. For chimneys up to 40 inches (1016 mm) wide, four No. 4 continuous vertical bars adequately anchored into the concrete foundation shall be placed between wythes of solid masonry or within the cells of hollow unit masonry and grouted in accordance with Section R609. Grout shall be prevented from bonding with the flue liner so that the flue liner is free to move with thermal expansion. For chimneys more than 40 inches (1016 mm) wide, two additional No. 4 vertical bars adequately anchored into the concrete foundation shall be provided for each additional flue incorporated into the chimney or for each additional 40 inches (1016 mm) in width or fraction thereof.

SECTION 3: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, et seq., “CEQA”) and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, et seq., the “State CEQA Guidelines”) because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment.

SECTION 4: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance’s effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

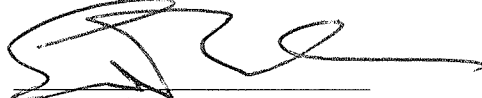
SECTION 5: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

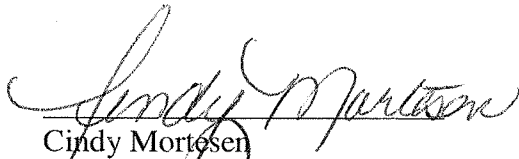
SECTION 6: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or

other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 7: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

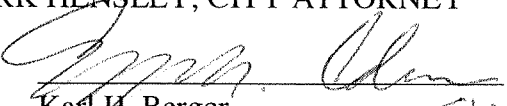
PASSED AND ADOPTED this 16th day of November, 2010.

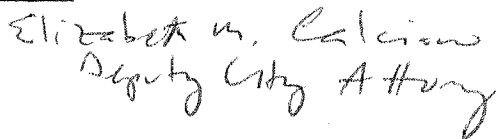

Eric Busch, Mayor


Cindy Mortesen
City Clerk

APPROVED AS TO FORM
MARK HENSLEY, CITY ATTORNEY

By:


Karl H. Berger
Assistant City Attorney

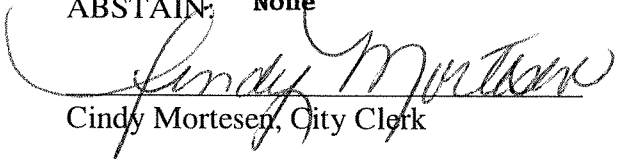

Elizabeth M. Calacion
Deputy City Attorney

ATTEST:

STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

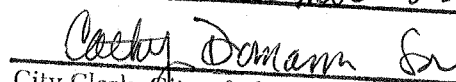
I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1455 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: Busch, Fisher, Brann, Fuentes
NOES: None
ABSENT: Jacobson
ABSTAIN: None


Cindy Mortesen, City Clerk

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:

ATTEST: November 23, 2010


Cathy Domann, Sr.
City Clerk, City of El Segundo

ORDINANCE NO. 1456

**AN ORDINANCE ADOPTING THE 2010 EDITION OF THE
CALIFORNIA GREEN BUILDING STANDARDS CODE
WITH AMENDMENTS.**

The Council of the City of El Segundo does ordain as follows:

SECTION 1: FINDINGS. The City Council finds and declares as follows:

- A. Health and Safety Code § 17958 requires the City is required to adopt certain codes that are set forth in Health and Safety Code § 17922 and published in the California Code of Regulations;
- B. Pursuant to Government Code §§ 50022.2, *et seq.*, the City may adopt other uniform codes by reference;
- C. It is in the public interest to adopt the 2010 Edition of the California Green Building Code set forth in this Ordinance;
- D. At least one copy of the California Energy Code was filed with the City Clerk of the City was available for public inspection for at least fifteen (15) days preceding the date of the hearing

SECTION 2: Chapter 17 is amended in it's entirety in Title 13 of the El Segundo Municipal Code ("ESMC") to read as follows:

CHAPTER 17

GREEN BUILDING STANDARDS CODE

13-17-1: ADOPTION OF CALIFORNIA GREEN BUILDING STANDARDS CODE, 2010 EDITION. Pursuant to California Government Code §§ 50022.1 to 50022.8, inclusive, the California Green Building Standards Code, 2010 Edition, published at Title 24, Part 11, of the California Code of Regulations, is adopted by reference, set forth below. One true copy of the California Green Building Standards Code, is on file in the office of the Building Official and is available for public inspection as required by law.

SECTION 3: CALIFORNIA ENVIRONMENTAL QUALITY ACT EXEMPTION. The City Council determines that this ordinance is exempt from review under the California Environmental Quality Act (California Public Resources Code §§ 21000, et seq., "CEQA") and the regulations promulgated thereunder (14 California Code of Regulations §§ 15000, et seq., the "State CEQA Guidelines") because it consists only of minor revisions and clarifications to an existing code of construction-related regulations and specification of procedures related thereto and will not have the effect of deleting or substantially changing any regulatory standards or findings required therefor. This ordinance, therefore, is an action being taken for enhanced protection of the environment and that does not have the potential to cause significant effects on the environment.

SECTION 4: SAVINGS CLAUSE. Repeal of any provision of the ESMC or any other city ordinance herein will not affect any penalty, forfeiture, or liability incurred before, or preclude prosecution and imposition of penalties for any violation occurring before, this Ordinance's effective date. Any such repealed part will remain in full force and effect for sustaining action or prosecuting violations occurring before the effective date of this Ordinance.

SECTION 5: SEVERABILITY. If any part of this Ordinance or its application is deemed invalid by a court of competent jurisdiction, the city council intends that such invalidity will not affect the effectiveness of the remaining provisions or applications and, to this end, the provisions of this Ordinance are severable.

SECTION 6: VALIDITY OF PREVIOUS CODE SECTIONS. If this the entire Ordinance or its application is deemed invalid by a court of competent jurisdiction, any repeal of the ESMC or other the city ordinance by this Ordinance will be rendered void and cause such ESMC provision or other the city ordinance to remain in full force and effect for all purposes.

SECTION 7: EFFECTIVE DATE. This Ordinance will take effect on January 1, 2011.

PASSED AND ADOPTED this 16th day of November, 2010.


Eric Busch, Mayor

The foregoing instrument is a full, true, and correct copy of the original on file in this Office:


ATTEST: November 23, 2010
Cathy Domann Sr.
City Clerk, City of El Segundo

ATTEST:

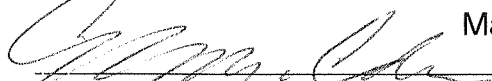
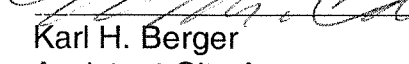
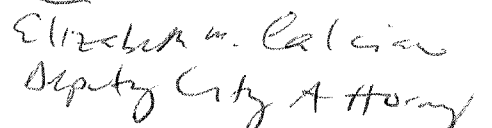
STATE OF CALIFORNIA)
COUNTY OF LOS ANGELES) SS
CITY OF EL SEGUNDO)

I, Cindy Mortesen, City Clerk of the City of El Segundo, California, do hereby certify that the whole number of members of the City Council of said City is five; that the foregoing Ordinance No. 1456 was duly introduced by said City Council at a regular meeting held on the 2nd day of November, 2010, and was duly passed and adopted by said City Council, approved and signed by the Mayor, and attested to by the City Clerk, all at a regular meeting of said Council held on the 16th day of November, 2010, and the same was so passed and adopted by the following vote:

AYES: **Busch, Fisher, Brann, Fuentes**
NOES: **None**
ABSENT: **Jacobson**
ABSTAIN: **None**


Cindy Mortesen, City Clerk

APPROVED AS TO FORM:

By:  Mark D. Hensley, City Attorney
 Karl H. Berger
Assistant City Attorney
 Elizabeth M. Carlson
Deputy City Attorney